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IRRATIONAL TENDENCIES IN MODERN THERAPY *

JOSEPH A. CAPPS, M.D.
CHICAGO

Seventy-five years ago, therapeutics was largely empiric, owing to the fact that the causes of disease were imperfectly understood and the means of making a diagnosis were inadequate. Under the influence of Cohnheim and Virchow, the pathologists explained the morphologic changes of inflammation and the structural alterations resulting from morbid processes. At the same time, clinicians were broadening their knowledge of disease by an intensive study of physical signs—a study that was stimulated by the introduction of instruments of relative precision, such as the stethoscope and ophthalmoscope. During this period, medical therapy was quite stationary and made little progress.

With the discovery of bacteria as the cause of many diseases and the advent of antisepsis, surgical therapy came to the front and made astounding strides. Medical therapy, however, was not yet prepared to profit by these advances, in spite of extensive studies by animal experimentation of the objective effects of drugs on the tissues and on the function of the organs. Rather did these studies bring about a feeling of skepticism concerning the action of drugs, and a conviction that their value was limited, or even useless, in many diseases. This was the age of drug nihilism, when the leading internists emphasized rest, diet, hydrotherapy and nursing as more important than medication. In typhoid fever, for example, so effective was the teaching of Osler and others of the uselessness of any specific therapy that even today the layman is satisfied to be treated for this disease without drugs. This attitude of skepticism toward the old empiric drug therapy was thoroughly wholesome, because it required new proof and convincing evidence before the value of any remedy was admitted. Another advance in rational therapy was the demand for simple prescriptions on the ground that mixtures of several potent drugs obscure the proper interpretation of their individual action.

During the last thirty years, medical therapeutics has entered on a period of unprecedented growth, beginning with a few promising plants and now developing into a perfect jungle of vegetation, in which the weeds threaten to gain the ascendency. The causes of this remarkable growth were the discovery of specific serums for the treatment of diphtheria, tetanus and meningitis; the discovery of specific chemical remedies for syphilis and trypanosomiasis; the successful protection against typhoid by inoculation, and the beneficial action of vaccines in increasing immunity to certain infections. More recently, the interest in endocrine therapy has been stimulated by the brilliant results of thyroid medication in hypothyroidism; by the preventive treatment of adolescent goiter with iodin, and by the isolation of thyroxin and insulin.

When we consider how many productive therapeutic wells have been drilled by skilful, industrious and intelligent scientists, is it at all surprising that there should appear a horde of therapeutic promotors and speculators? The drug houses, unfortunately, are furnishing the capital for these wildcat enterprises, and are sending out literature that would make one believe that specific medication is available for almost every infection and disease.

This seems a fitting occasion to call attention to some of the irrational tendencies of present day therapy, and also to make certain suggestions for their correction.

EXPERIMENTAL THERAPY

Before discussing any special practices, allow me to point out the distinction between experimental therapy and established or proved therapy. In gaining new knowledge of any remedial agent, it is necessary that it should first be tried out extensively by qualified experts and approved before it can be safely recommended for general use. This procedure has been accepted in principle and practice in the introduction of arsphenamin and the serums for diphtheria, meningitis and tetanus, as well as in the prophylactic use of typhoid vaccine. But in much of our so-called specific therapy of today the general practitioner assumes the rôle of experimentalist without the clinical facilities, the training or the experience to enable him to pass judgment on their worth. He is altogether too willing to accept the glowing recommendations of the commercially interested drug manufacturer in place of those of the unbiased, scientific physiologist, pharmacologist or clinician who is seeking only the truth. The experimentalist, then, must be allowed a latitude in trying out new methods or remedies which it is not profitable for the general practitioner to assume.

INTRAVENOUS THERAPY

The administration of drugs, serums and vaccines by the intravenous route has become a vogue. The frequent employment of the method in giving arsphenamin and other arsenicals has brought about a sense of security in introducing in this way a great variety of preparations that were formerly given only by mouth or subcutaneously. In a recent catalogue of solutions put up in ampules for intravenous use that were listed by a drug firm are iron and arsenic, sodium iodid, sodium salicylate, mercuric chlorid, quinin, guaiacol, sodium glycerophosphate, digitalis, hexamethylenamin and

* Chairman's address, read before the Section on Practice of Medicine at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

sterilized distilled water. Of course, it is often desirable to administer digitalis intravenously when rapid action is indicated, though oral administration in most cases is sufficient. Likewise, in pernicious types of malaria, rare in our country, quinin may be given in the vein; but it seems superfluous in the ordinary treatment of the disease. But what is to be gained by choosing the intravenous method in the case of the other drugs? Is there any evidence that they are more efficacious administered in this way than by mouth or under the skin? If not, must we not consider the possibilities of actually doing an injury to the patient by throwing such substances directly into the blood stream? Even physiologic, or "normal," sodium chlorid solution is not devoid of objection and danger when introduced freely into a vein. Such a solution only approximates the density of the serum of a healthy individual; it is seldom actually "normal" or isotonic in disease conditions. Patients have died as a result of intravenous injections of salt solution, one in my own observation. In one of our leading hospital clinics, intravenous salt solutions are prohibited except in emergencies, hypodermoclysis being the approved practice. A hypertonic or hypotonic solution is capable of profoundly disturbing the salt balance in the blood and doing harm, whereas no such danger exists when the solution is given under the skin. "Sterilized distilled water" marketed in ampules containing from 5 to 100 c.c., if given in the vein, is, of course, highly hypotonic and would readily lake red corpuscles. It is a hemolytic poison.

The intravenous injection of many of these preparations seems entirely unnecessary to obtain the full effect of the drug, and the dangers are no less real because they are not easily discernible.

VACCINES

Vaccine therapy also has been overexploited. Vaccines should be employed only for the conditions in which the most careful experiments have proved their value. The vaccines of unquestioned merit are the smallpox and the typhoid prophylactic vaccines. There is evidence of benefit from giving staphylococcus in furunculosis; colon bacillus in some chronic urinary infections; gonococcus for gonorrheal arthritis; tuberculin for certain chronic tuberculous lesions; pollens for hay-fever, and autogenous vaccines for some cases of bacterial bronchial asthma. All these vaccines are given subcutaneously. It is true that bacterial vaccines injected intravenously to produce a nonspecific reaction have exerted a favorable influence in some cases of arthritis and iritis, but this difficult field of therapy would be better left to competent clinical experimenters until its true status is determined. The numerous vaccines in use for the prevention and treatment of colds, influenza and other respiratory infections are based on unsound theory and practice. Moreover, instances are not lacking to show that they may do actual harm to the patient. Polyvalent vaccines are unscientific in their conception, and an impediment to rational therapeutics.

ENDOCRINES

Endocrine therapy has earned its place of high esteem through the remarkable benefit of thyroid gland and thyroxin in hypothyroidism, and through the control of diabetes by insulin. There is encouragement also in the corrective influence of injections of pituitary extract in diabetes insipidus. These results, achieved by the painstaking work of trained scientists, have tempted physicians to administer endocrine substances for supposed deficiency of all the ductless glands. Ovarian substance may exert some influence on ovarian functions, but the evidence of experimental physiologists and reliable clinical observers lends little support to the belief that the feeding of suprarenal, hypophysis, thymus, pancreas or testis preparations produces the characteristic effects of these glands on the organism. The profession, eager to accept the authority and leadership of the scientists in victorious advances, defies the same authority and leadership when the order is to halt. Polyglandular therapy is now taking the place of the old shotgun prescription, with its slipshod diagnoses and emotional appraisal of results.

ALCOHOL AND HEROIN

One of the most flagrant instances of irrational therapeutics is the abuse of the physician's license to prescribe alcohol. It is well known that most of the liquor dispensed on physicians' prescriptions is not intended for the treatment of the sick. Whatever as individuals we may think of the Volstead law, we are morally bound to restrict prescriptions to medicinal purposes. Selling one's prescription blanks to the druggist is worse than fee splitting, and should be cause for exclusion from membership in the American Medical Association.

The promiscuous use of heroin might better be termed as thoughtless than as irrational. We are all aware of the enormous increase in the number of heroin addicts during recent years, and of the tendency of the habit to change normal persons into criminals. As physicians, we should be sure that the habit does not have its origin in the frequent use of the drug in heroin-containing cough mixtures, especially as iodin offers a satisfactory substitute and does not induce a habit. The medical staffs of two of the large hospitals in Chicago have agreed to discontinue the use of heroin except in unusual emergencies. A general adoption of this practice would do a great deal to stamp out the heroin evil.

END-RESULTS

Rational therapeutics can be promoted by a more thorough and long-continued study of chronic diseases and the ultimate effect of any specific therapy thereon. The need of more intensive observation of the beginning of disease has been widely emphasized by Mackenzie and others. The study of end-results of treatment in chronic diseases is also important. Joslin's accurate records of a large group of diebetic patients, followed over a long period of years, is a conspicuous example of the value of such observations. We need more data on the end-results of the quite general practice of removing foci of infection, with a view of determining to what extent recurrent arthritis and endocarditis are prevented by these resources. The life history, over a long period, of many patients with bacterial endocarditis is necessary before we can establish the value or worthlessness of any special therapy. Our hospitals and clinics should consider it an important function to keep an inventory of the end-results of the treatment of many diseases for years after the patient leaves the hospital.

CONCLUSION

Sane and rational therapy would be greatly promoted if physicians in general paid more attention to the reports of the Council on Pharmacy and Chemistry. Almost everything of value, not in the National Formulary, can be found in New and Nonofficial Remedies. Remedies that fail to meet the approval of the Council

are, with few exceptions, preparations that are dishonest in their manufacture or their exploitation, or are given a name intended to deceive or are quite worthless. Of course, the inclusion of a preparation does not imply an endorsement of its value by the council, for this is a matter for the physician to decide. The reasons that influence the council to reject a preparation are such as would influence any of us to reject it, were we acquainted with all the facts.

Fads in the treatment of disease often seem to bring success to the promoter, but in the long run rational therapy wins the confidence of the public and brings the practice of medicine nearer to the goal of a scientific profession.

1401 Peoples Gas Building.

URTICARIA CAUSED SPECIFICALLY BY THE ACTION OF PHYSICAL AGENTS

(LIGHT, COLD, HEAT, FREEZING, BURNS, MECHANICAL IRRITATION, AND PHYSICAL AND MENTAL EXERTION) *

W. W. DUKE, M.D.
KANSAS CITY, MO.

It is a common experience for patients with hay-fever or asthma to find that their symptoms are influenced by heat, cold, mechanical irritation, and change in atmospheric conditions, as well as by exercise, reflexes, or emotional disturbances.

It is very evident that such factors frequently play contributory rôles in the pathogenesis of symptoms due primarily to hypersensitiveness to foods, pollens and other agents. The marked effect of physical conditions is often difficult to account for on this basis, however, for occasionally the nasal and bronchial symptoms seem to be affected solely by a physical agent. This surmise is very difficult to prove true.

A good opportunity for a careful investigation of this relationship is afforded through the study of patients subject to urticaria and allied skin affections who appear to be markedly influenced by the action of physical agents. Here reactions can be more directly and accurately studied than is possible in the case of the nasal or bronchial mucous membrane.

I present here studies of this nature which show, I believe, that reactions simulating the urticaria caused by hypersensitiveness to foreign matter can be brought out directly and solely through the action of physical agents, such as by light, heat, cold, freezing, burns and mechanical irritation. In one patient hypersensitive to heat, the eruption could be brought out also by mental or physical exertion. This effect, however, is believed to have been traceable to heat production.

URTICARIA SOLARIS (URTICARIA CAUSED BY LIGHT)

Normal persons are seriously affected by light if the exposure is great enough. Under pathologic conditions, patients may be so sensitive to light that ordinary exposures give rise to skin lesions (hydroa vacciforme, xeroderma pigmentosum and pellagra) and to general illness. Animals inoculated with photodynamic substances, such as hematoporphyrin or eosin, become so sensitive to light that exposure to direct sunlight for a few minutes may result fatally.

The patient in Case 1 became spontaneously so sensitive to light that, on exposure to summer sunlight for thirty seconds, she would invariably react with an urticarial rash.

CASE 1.[1]—A married woman, aged 43, a number of whose relatives were subject to seasonal hay-fever, asthma and urticaria, had observed for four years before seeing me that the skin itched intensely and broke out with wheals whenever she was exposed to sunlight; and whenever a sufficient area of skin was exposed she became seriously ill. On one occasion, temporary blindness followed exposure of the face to sunlight.

Physical, laboratory and roentgen-ray examinations, and intracutaneous tests, revealed nothing of interest.

On testing, it was found that hives could be produced by exposure to any type of light that contained violet rays; namely, by the light of a nitrogen lamp, arc light, sunlight, or mercury vapor quartz light. The skin was unaffected by ordinary exposures to the roentgen ray or to colored light except blue violet. Exposure of the skin for thirty seconds to summer sunlight was followed within a few moments by erythema and itching, and within five minutes or less by the appearance of a typical hive which would cover the entire area exposed, but which never extended with pseudopod formation beyond the area exposed.

Exposure of a considerable area of skin was followed by an eosinophilia (8 per cent.).

The subcutaneous injection of epinephrin (1 c.c.) did not prevent the reaction on exposure to light.

A reaction was followed by temporary exhaustion of the skin locally, so that further applications of light on the same day produced less or no reaction.

Application of light at daily intervals was associated with a considerable degree of local tolerance, so that, after repeated applications of light, a twenty-five minute exposure produced less effect on the skin than could be produced by a two minute exposure of untreated areas. No marked increase in tolerance of the skin generally followed this treatment. (The word "tolerance" is used here in a very general way, for the apparent local tolerance may have been partly the result of an exhaustion process). After a time this tolerance was lost, and telangiectases appeared over the treated area. In harmony with this, it may be mentioned that the face, neck, hands and forearms, which are, of course, naturally exposed to light at frequent intervals, were much more tolerant of light than covered areas, such as the chest, shoulders and back.

Every effort to produce hives by such agents as heat, rubbing, scratching, by the application of chloroform liniment, and by intracutaneous injections produced no visible effect unless the skin was simultaneously exposed to light.

An additional case observed recently gave a similar history and examination, except that reaction followed only prolonged exposure to light (one hour or more of summer sunlight). The reaction, redness, itching and hives appeared only after an interval of one hour or more. The eruption lasted longer, however, and was followed by a scaly eczema of the skin which persisted for a week or more.

This condition seems analogous to urticaria dermographica and urticaria hiemalis (to be described subsequently), in that the reaction is almost entirely local and does not spread beyond the area irritated. It should be classed, it seems to me, as a type of urticaria factitia, and for it the name "urticaria solaris" is suggested.

URTICARIA HIEMALIS (URTICARIA CAUSED BY COLD)

Normal persons are affected by cold if sufficiently exposed. Under pathologic conditions (chilblains and paroxysmal hemoglobinuria), a patient may be so sensitive that relatively small exposures to cold cause illness. In a case reported by Ward,[2] the patient was so sensi-

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* Read before the American Association of Immunologists, Buffalo, April 17, 1924.

1. This case has already been reported in detail: Duke, W. W.: Urticaria Caused by Light, J. A. M. A. **80**: 1835-1838 (June 23) 1923.
2. Ward, S. B.: Erythema and Urticaria with a Condition Resembling Angioneurotic Edema, Caused Only by Exposure to the Sun's Rays, New York M. J. **81**: 742-743, 1905.

tive to cold that exposure of her face for a few moments to a cold wind would result in blanching and stiffness of the skin as if frozen. Osler [3] and Fraser [4] mentioned a case in which the patient invariably had urticaria if exposed to low temperature. In the case reported here, the patient was hypersensitive to cold, and invariably reacted with hives when sufficiently exposed.

Case 2.—A physician, aged 43, came to me complaining of hives. Two of his three children were troubled with urticaria. The patient had never been troubled with hives until about five months before consulting me, when he noticed that exposure of his face to a cold wind would cause swelling of the tongue, cheeks, eyelids and ears, with associated burning, itching and redness of the skin, excessive lacrimation, itching of the eyes, sneezing and cough. The drinking of cold water caused pain in the mouth, throat, esophagus and stomach. On one occasion, when exposed more than usual to cold, he had a severe constitutional reaction which caused total collapse and required epinephrin for relief.

Physical, laboratory and roentgen-ray examinations were negative or of no interest in this connection.

Intracutaneous tests with a large variety of substances (more than 300) were negative throughout.

Exposure of the skin to cold water for two minutes was followed by erythema and itching almost immediately, and by a hive at the end of five minutes. The reaction was brought out best by water at from 10 to 15 C. When ice was carefully applied so that presumably the temperature of the skin was brought to zero, practically no reaction occurred until the skin had warmed up, when the usual reaction would appear. Water at 20 C. caused very little reaction, and water at 30 C. none. Both erythema and hives would cover the entire wet area, but under no condition extended beyond the wet area. Freezing of the skin with ethyl chlorid caused a hive, but not so promptly nor so marked a reaction as was produced by cold water.

Efforts to produce hives by agents such as light, heat, mechanical irritants, burns and chemical irritants gave negative results.

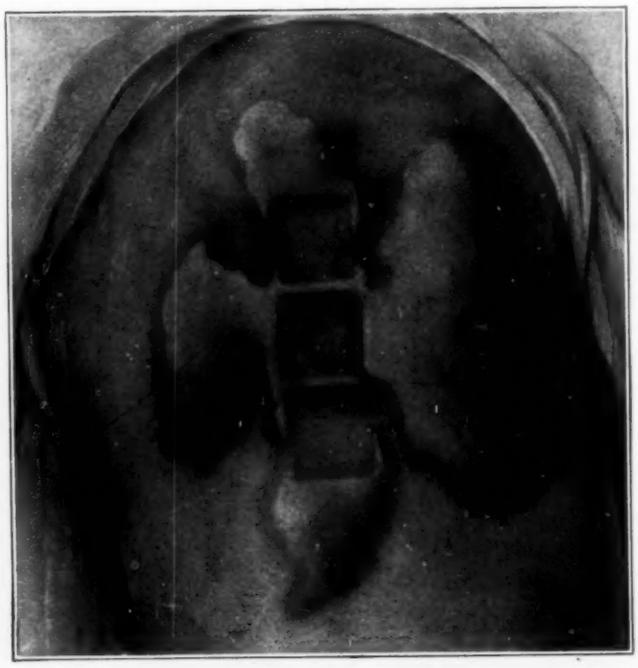

Fig. 1.—Urticaria solaris: Large area of itching edema which appeared in five and one-half minutes after exposure of the skin to sunlight for two and one-half minutes. The irregularities in the figure were due to a shadow cast by the hands holding three pieces of square colored glass in contact with the skin. The shape of the shadow cast by the hands was modified slightly by the artist to illustrate better how closely the edema followed the outlines of the colored glass. The edema did not spread beyond the area exposed to light. Sensitiveness in this patient increased at a later date, so that a thirty second exposure sufficed to produce a severe reaction. General symptoms were felt when a large area of skin was exposed. After subsidence of the reaction, further exposure of the area to light on the same day produced less or no reaction. Frequent exposure of an area gave rise to local tolerance for light, which lasted several days.

Exposure of a large area of the skin was followed by an eosinophilia (8 per cent.).

The subcutaneous injection of epinephrin into the edematous area caused its immediate disappearance locally, but did not affect areas more than 1 or 2 cm. distant, nor did it markedly affect the reaction of the skin elsewhere on further application of cold.

Skin areas that had reacted to water from 10 to 15 C. were totally exhausted by the reaction, so that further application of cold caused no effect whatever, either erythema, itching or edema.

The period of exhaustion lasted over two hours, but after twenty-four hours the skin reacted about as usual.

A considerable degree of local skin tolerance was obtained by the application of cold to the skin several times daily for several days. The tolerance produced in this way was of short duration. This observation is in harmony with the fact that the skin of the hands, face and forearms (more frequently exposed to cold than other parts of the body) had much more tolerance for cold than other skin areas.

This condition seems similar to urticaria solaris in that the reaction is local and does not spread with pseudopod formation beyond the exposed areas. It should be classed as a type of urticaria factitia, and for it the name "urticaria hiemalis" is suggested.

URTICARIA DERMOGRAPHICA (URTICARIA CAUSED BY MECHANICAL IRRITATION AND FREEZING)

In normal persons, marked mechanical irritation of the skin causes local redness. Under pathologic conditions, such as dermographia, slight irritation is followed by marked erythema. Under certain other pathologic conditions, a scratch is followed by the formation of wheals. This condition has been called factitious urticaria. It seems analogous in every sense to the local types of urticaria just described caused by light and cold. Case 3 is a classical example of this type of illness in severe grade.

Case 3—A boy, aged 8, whose father had been subject to asthma for a great many years, had been subject, since infancy, to hives, which would invariably follow scratching of the skin. The history was otherwise negative or unimportant.

The physical, laboratory and roentgen-ray examinations were negative or of no interest in this connection.

Intracutaneous tests with all the common foods, bacteria and pollen, etc., gave negative reactions.

A slight scratch of the skin was followed within five seconds by a line of redness of the skin and slight itching and within less than three minutes by a line of edema, which persisted for about forty-five minutes and then gradually disappeared. A wheal could be produced by any mechanical irritation, such as scratching with the nails or any relatively sharp instrument, by slapping or pinching the skin, or even by rubbing the skin with a piece of rough cotton gauze. The greater the irritation, the more prompt and marked the reaction.

Rubbing the skin with a soft woolen cloth or with a smooth object, such as a test tube or the side of a pencil, would cause no reaction whatever, even when the skin was rubbed until heat was produced by the friction.

Freezing of the skin with ethyl chlorid would give rise to a wheal. The latter observation was also true in three similar cases in which the tests were made. It seems, therefore, to be a constant finding in this type of case.

Tests made with a great many other physical agents gave negative results. This included the application of cold water, the application of water at 50 C. for two minutes, water at

3. Osler, William: On the Visceral Manifestations of the Erythema Group of Skin Diseases, Am. J. M. Sc. **127**: 1-24, 1904.
4. Fraser, T. R.: Urticaria a Frigore, Tr. M. Chir. Soc. Edinburgh **25**: 90, 1905.

80 C. for fifteen seconds, chloroform liniment, ultraviolet light, the light and heat of a nitrogen lamp, high frequency current, positive and negative poles of a static current, and intracutaneous injections.

A marked reaction produced over a large area of skin was followed by an eosinophilia (10 per cent. on one occasion), redness of the face and ears, and slight generalized itching, which would lead to scratching and hives. This was interpreted as evidence of a slight general reaction.

The skin was exhausted by a marked reaction. For example, an area that reacted after being scratched with a glass slide would not react again within a period of from one to two hours if scratched with a glass slide. It would react, however, when scratched with a sharper instrument, such as a needle. The reaction produced in this way, however, was slight, and disappeared more quickly than a similar reaction produced at the same time over an untreated area. If an area of skin was scratched several times with a glass slide, it would become totally inactive, so that not even a scratch with a sharp piece of wood would give rise to a wheal. An area that had reacted to freezing was partially exhausted to irritation by scratching, and vice versa. Exhaustion in neither case, however, was complete.

The skin of the hands and feet, which are naturally affected at frequent intervals by mechanical irritants, was highly resistant to the effect of scratching.

The administration of epinephrin (0.5 c.c. subcutaneously) did not prevent reactions.

This condition seems analogous in every sense to the local urticaria caused by light and cold, in that the urticaria produced was limited to the area directly affected by the irritating agent. For it the name "urticaria dermographica" is suggested as more descriptive and more definite than the name "urticaria factitia." It seems proper that the term "urticaria factitia" be broadened to include all types of local urticaria caused by the action of physical agents.

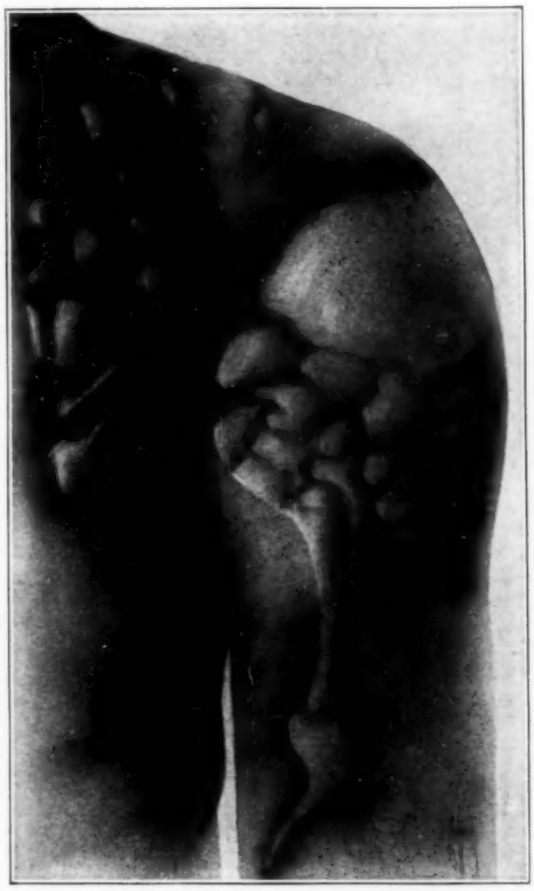

Fig. 2.—Urticaria hiemalis: Hives produced by the application of ice water for two minutes to the shoulder and chest. The hives on the shoulder eventually coalesced into one large hive. The hives on the chest each occupied the site of a large drop of water. The erythema shown appeared over areas moistened by the water. The urticarial edema did not spread beyond the wet areas. This is shown well in the area on the arm near the axilla, where the water had run down, covering the entire moist area. The "pseudopod" extending down the arm was caused by drops of cold water that ran down from the wet area. General symptoms were felt when a large skin area was exposed to cold. After subsidence of the reaction, the further application of cold water to the same area on the same day had no effect whatever. Local tolerance for cold followed frequent exposure of the skin to cold water, and lasted several days.

URTICARIA AB IGNE (URTICARIA CAUSED BY BURNS)

Patient 4 was hypersensitive to heat, and reacted with localized urticaria when burned.

CASE 4.—A married woman, aged 34, with negative family history, since childhood had been subject to an erythematous, itching, edematous eruption whenever she was burned. Erythema and itching would develop gradually after about an hour locally at the site burned, and after from six to eight hours an itching hive would develop which would persist for about twelve hours. She frequently noticed wheals on her forearms and hands after cooking with frying grease, the little droplets of grease apparently sufficing to give rise to an eruption.

On one occasion, when an area of skin 5 cm. in diameter was severely burned, the patient had a generalized urticarial rash.

Physical and laboratory examinations were negative.

A test tube of hot water was applied to the skin at a temperature of 50 C. for thirty seconds, 60 C. for thirty seconds, 70 C. and 80 C. for fifteen seconds, and at 90 C. for one second. Within an hour there was slight redness around the 80 C. area. This was followed after a time by the appearance of a small blister and after about six hours by an elevation and itching of the skin which resembled a wheal.

The physical agents used in the study of the previous cases caused no unusual reaction.

Our study of this case, unfortunately, could not be completed. The history, however, seems clear enough to justify the use of the case as a contrast to the general reaction caused by heat, which is to be described under the title of "urticaria calorica."

URTICARIA CALORICA (URTICARIA CAUSED BY HEAT AND BY MENTAL AND PHYSICAL EXERTION)

Normal persons are affected by heat if the exposure is great enough. Abnormal sensitiveness to heat is occasionally observed clinically (bath pruritus, heat stroke). Animals can be made heat sensitive by exposure to certain rays of light. Bovie and Klein[5] have shown that *Paramecium caudatum* can be made so sensitive to heat by exposure for four seconds to fluorite rays that a rise of temperature of a few degrees (to 17 C.) causes death almost instantly. *Laminaria* have been made heat sensitive by exposure to the rays of radium.

Patient 5 became spontaneously hypersensitive to the effect of heat, and invariably reacted with generalized urticaria when exposed to heat from any source.

CASE 5.—A man, aged 22, came to me complaining of an itching and burning eruption of the skin. The family and past history were negative. For two months before seeing me, he had been subject to generalized itching, burning and redness of the skin, usually associated with an urticarial rash whenever he was exposed to a little heat, when he exercised, or when he was subjected to mental excitement when in a warm room. The condition had been constantly present since its first appearance, but was worse at some times than at others. On certain days he would break out frequently (often twenty-five times within twenty-four hours). He would usually react with a rash on entering a warm room, when covered up too warmly in bed, after the mild exercise of putting on a coat, after the slight mental excitement coincident with watching an athletic contest, or on becoming a little angry or vexed.

The itching rarely persisted more than five minutes. The urticarial rash, however, usually lasted longer, but rarely for

5. Bovie, W. T., and Klein, A.: Sensitization to Heat, Due to Exposure to Light of Short Wave Lengths, J. Gen. Physiol. **1**: 331-336 (Jan.) 1919.

more than thirty minutes, even when the patient remained at the same temperature.

The attack could always be cut short or prevented by the application of either cold air or cold water.

Constitutional symptoms, other than itching and the rash, had not been noticed.

Physical, laboratory and roentgen-ray examination, and intracutaneous tests were all negative.

The temperature taken over a considerable period of time was almost constantly subnormal, ranging from 96 F. in the morning to 97 or 98 in the afternoon. The usual temperature was about 97. It was noticed that the reactions were more frequent and easier to bring out on the days when the patient's temperature started out low. On one day when the morning temperature was 99 on account of a cold, he had no attacks at all.

Following the application of hot water to the skin, the heat from a nitrogen lamp, or the heat from an autocondensation current or from a diathermic current, there would appear within a few seconds a generalized blotchy erythema of the skin associated with intense itching. This would be followed within one minute by the appearance of hives of varying size. When the attack was light, the hives were very small. With severe attacks, some measured 1 cm. in diameter.

On some days, attacks could be brought out by remarkably little heat—as little as thirty seconds' exposure of the forearm

Fig. 3.—Urticaria calorica: Urticaria caused by the action of heat. This generalized rash followed exposure of the right shoulder to the heat of a nitrogen lamp for one minute. On days when the patient was unusually sensitive, a rash would follow a fifteen second exposure, and some of the hives would be much larger. Reactions of the same sort could be brought out by physical or mental exertion. Each reaction was associated with a rise of temperature of 0.2 degree F. or more, and could be stopped or prevented by the application of cold water to the skin. Five reactions of this sort were produced within a period of one hour, but could not be produced after the body temperature had been raised to normal by heat.

to the heat from a 1,000 watt nitrogen lamp at a distance of 5 cm. would suffice. Each attack was associated with an immediate rise of temperature of 0.2 degree or more. The temperature would often rise spontaneously, however, during the day without an outbreak of urticaria.

His attacks could be cut short or prevented by the local application of cold water or ice to the arms and hands. This, however, was not associated with any reduction in the body temperature.

Heat was applied to the right shoulder for three minutes, and simultaneously ice was rubbed on the chest and back. Neither rash nor itching appeared. On further application of heat for one minute without ice, the typical eruption occurred.

Slight exercise (bending over ten times) while clad would bring out the rash. Relatively severe exercise with the body exposed to cool air or while holding ice in the hands produced no such effect. The same phenomenon followed mental effort and could be prevented by the application of ice.

A rubber tourniquet was applied to the arm so tightly that blood could neither enter nor leave the arm (except through anastomoses with vessels in the bone marrow). The heat from a nitrogen lamp was applied to the forearm below the tourniquet for one minute. At the end of this time a generalized erythema and itching made its appearance, followed by the typical urticarial rash.

Exhaustion of reactivity to heat followed exposure to heat of such a degree as to cause not only a reaction but also a marked rise in body temperature. Several reactions giving a rise of temperature to 98.4 would prevent further reaction on ordinary exposures to heat or after exercise or mental effort. Tolerance was given by warm weather, which would prevent the unusually low morning temperature. This interesting fact is worthy of emphasis, for practical tolerance was gained in this patient through the use of any agent that kept his temperature up toward normal.

Slight eosinophilia (10 per cent. on one occasion) followed a severe reaction.

Visible perspiration was not noticed on any examination except once, after the administration of epinephrin.

The administration of epinephrin (0.5 c.c. subcutaneously) enabled the patient to tolerate without symptoms at least fifty times as much heat as caused a marked reaction previous to its administration.

He was unaffected by light, cold, freezing, burns, mechanical irritants or intracutaneous injections of more than 300 substances.

There are many points of interest in this case which can hardly be discussed at length in this connection. First and foremost, however, it must be noted how different this type of illness is from the examples of contact reaction previously referred to. In this case, the local reaction was at a minimum while the general reaction occurred almost instantaneously. It is an entirely different character of illness from the urticaria dermographica, urticaria solaris and urticaria hiemalis.

The reaction that followed mental and physical exertion was due, I believe, to the heat produced by the effort; and I believe that cases of reaction to exercise and emotional disturbance can frequently be attributed to heat sensitiveness.

It seems unlikely that the agent responsible for the action was carried by either the blood or the lymph, for it occurred promptly on exposure of the forearm to heat when a tourniquet was applied around the arm above the exposure so tightly that neither blood nor lymph could either enter or leave the arm, except through anastomoses with vessels in the bone marrow. One might surmise that the reaction spread through the medium of the nervous system. However, it could not have been an ordinary reflex, for it was invariably associated with a rise of temperature and could be prevented or stopped by cold.

This disease seems to be a clinical entity, and for it the name "urticaria calorica" is suggested.

CONTACT REACTIONS (A DISTINCT TYPE OF REACTION)

The contact reactions caused by light, cold, mechanical irritations, freezing and burns represent, apparently, a distinct type of illness or, rather, a distinct type of reaction. They were characterized throughout by the following phenomena:

1. The patients gave a family history of hay-fever, asthma or hives.

2. A local reaction, characterized by erythema, itching and edema, was brought out specifically by the action of one or two physical agents, and could not be produced by other agents, including the intracutaneous injection of a large variety (over 300) of substances.

3. The reaction failed to spread with pseudopod formation beyond the area directly exposed.

4. The skin was exhausted locally by reaction.

5. Local tolerance followed frequent exposures.

6. Symptoms of general (or constitutional) reaction, such as collapse and eosinophilia, followed the reaction of large areas of skin.

7. Reactions, although stopped locally by an injection of epinephrin, were not affected by the subcutaneous injection of ordinary amounts (from 0.5 to 1 c.c.) of epinephrin at distant points.

This type of reaction might be called, for the sake of emphasis, a contact reaction, and should be distinguished from diffuse reactions (such as those of urticaria calorica) and from general or constitutional reactions which follow exposure of large areas of skin in the contact cases. It should be classified as a type of factitious urticaria, and under subheads could be included the illnesses "urticaria solaris," "urticaria hiemalis," "urticaria dermographica," "urticaria ab igne," etc.

Examples of each type of reaction can involve apparently mucous membranes, giving rise in the case of nasal reaction to symptoms simulating hay-fever, in case of involvement of the bronchial mucous membrane to the symptom cough or bronchial asthma, and in the case of involvement of the gastro-intestinal mucous membrane, to gastric pain, etc.

It may be mentioned at this point that Patient 2 had redness of the eyes, increased lacrimal secretion and sneezing when his face was exposed to a cold wind, and pain in the abdomen after the drinking of cold water. Patient 1 had temporary blindness after exposure of the face to sunlight.

It seems inadvisable at this time to insist that pollen disease is an illness of the same nature as the contact type of reaction caused by physical agents, although it is similar in almost every respect. For example, the family history is the same; pollen reactions occur locally at the site of application of the pollen, and, when the dose is sufficient, general reaction and eosinophilia ensue; the membrane is exhausted locally by reaction; and, finally, the reaction is not completely stopped by subcutaneous injections of ordinary doses (from 0.5 to 1 c.c.) of epinephrin. Pollen reactions, however, differ from the reactions caused by physical agents in the fact that edema spreads far beyond the site of injection of pollen extract into the skin. However, this might be due, in part at least, to spread of the pollen solution through the lymph channels.

THEORETICAL EXPLANATION OF CONTACT REACTIONS

What are the possible explanations of the remarkable phenomena observed? Several suggest themselves as worthy of consideration:

1. The patients, coming as they did from hay-fever, asthma or hive families, may have actually become specifically hypersensitive to some product generated in their own tissues under the influence of a physical agent. It may be mentioned here that each physical agent mentioned is capable of altering and damaging protoplasm in normal persons.

2. Through the influence of some abnormal condition, such as hematoporphyrinemia, or exposure to roentgen ray, radium ray, actinic ray or some other agent, some protein body may have been so altered that it could be split through the specific action of a physical agent, with the liberation of a hystamin-like body.

3. Through the action of some substance, possibly such as hematoporphyrin and light, or roentgen ray or actinic ray, the temperature at which certain organic bodies could jellify or tend to coagulate might have been so changed that aggregation of their molecules could be caused by the action of physical agents, so that direct damage to certain tissue cells could be produced by them even in the amounts encountered under natural conditions.

It may be mentioned here that animals can be so sensitized to light by the intravenous injection of hematoporphyrin [6] that a relatively short exposure to light results fatally; the *Paramesia caudatum* can be so sensitized to heat through the action of the actinic ray, radium ray or roentgen ray that a rise of temperature of a few degrees results fatally; [5] that egg white can be coagulated at room temperature through the action of the actinic ray [7] and by ordinary sunlight if hematoporphyrin [8] is added to the solution; and, finally, that the temperature at which albumin coagulates and gelatin liquifies [5] can be lowered through the action of physical agents, such as the roentgen or the actinic ray.

Fig. 4.—Urticaria demographica: Upper right, line of edema brought out by gentle scratching of the skin with a blunt piece of wood. Lower right, urticaria brought out by the patient scratching. Upper left, area of edema brought out by freezing with ethyl chlorid; this reaction was constant in four similar cases. Lower left, edema brought out by scratching with a gla s slide. Exhaustion of skin follows a reaction of this sort, so that further mechanical irritation produces less or no effect.

It seems not impossible, in view of these experiments, that an aggregation of protein molecules might occur intracellularly under the action of certain physical agents, and in this way give rise to an insult to the cell which could cause a reaction locally and, in case of involvement of large areas of skin, could set free poisonous bodies which could give rise to general reaction and collapse. In view of the negative results [9] obtained by the intracutaneous injection of the serums of my patients into normal individuals and hay-fever patients followed by exposure of the injected areas to

6. Pfeiffer, H.: Der Nachweis photodynamischer Wirkung fluorescierender Stoffe am lebenden Warmbluter, in Abderhalden's Handbuch der biochemischen Arbeitsmethode **5**: 563.

7. Bovie, W. T.: Temperature Coefficient of the Coagulation Caused by Ultraviolet Light, Science **37**: 373, 1913.

8. Clark, Janet H.: Personal communication to the author.

9. Unpublished observations, and those recorded in the article mentioned in Footnote 1.

the action of the physical agents mentioned, one would be inclined to believe that the substances responsible for the reaction in these cases reside in the tissue cells rather than in the plasma.

4. According to the experiments of Dr. Janet H. Clark,[10] the various proteins of plasma, if separated from plasma and purified, can be coagulated by the action of the actinic ray. Plasma itself, however, cannot be coagulated in this way. According to her view, the plasma contains protective substances that hinder light rays from coagulating its protein. The existence of such substances would seem theoretically quite necessary for the protection of the surface protein, especially in animals that are exposed frequently to light. It seemed quite possible that the sensitiveness of Patient 1 might be accounted for through a lack of such protecting bodies, and that similar mechanisms might be involved in the patients that were sensitive to heat and cold.

The serum of the light-sensitive patient was studied from this point of view, however, both by Dr. Clark and by me, and found to behave like normal serum on exposure to light.

It may be added here that in every case of reaction, intense local erythema and itching were the first evidences of reaction, and that these were followed later by edema. I think it can be assumed that capillary dilatation takes place first and that edema follows. The assumption, however, does not account for the fact that capillary dilatation takes place in different persons under the influence of totally different agents.

Further experiments, directed toward the elucidation of this interesting phenomenon, will be undertaken.

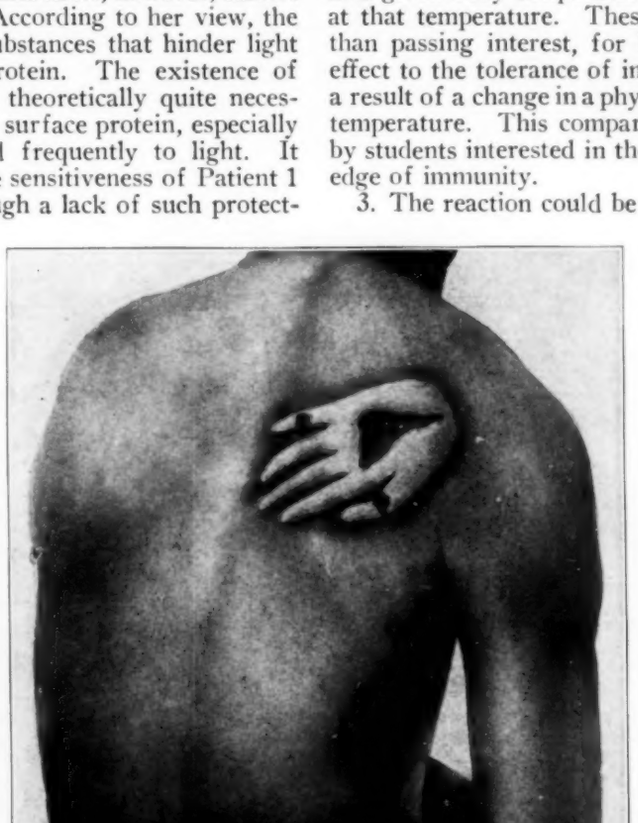

Fig. 5.—Urticaria dermographica: Perfect image of a hand in relief brought out by slapping the skin gently in an extreme case of urticaria dermographica. The image was first outlined as an intense erythema, which appeared within fifteen seconds; the edema soon followed. Sensitive as this patient was, the hands and feet were totally unresponsive to mechanical irritation of any sort, showing the high grade of tolerance developed by frequent irritation even in a patient so sensitive as this.

DIFFUSE REACTIONS (A TYPE OF REACTION)

The characteristics of diffuse reactions caused by exposure to heat stand in striking contrast to the contact type of reaction, in the following respects:

1. The redness, itching and urticaria produced by heat spread very rapidly, involving almost the entire body within a few seconds. The local reaction at the site of application of heat was not much greater than the reaction that occurred generally.

2. The reaction was followed by temporary exhaustion of the skin only in the following respect: A number of reactions could be produced within a short period of time (twenty-five in twelve hours). However, each reaction would be associated with a rise in temperature. When a reaction was produced at a given temperature, a second reaction could not be produced unless the heat applied was sufficient to raise the body temperature at least 0.2 degree higher, and after the body temperature had been raised to normal or a little above, further reaction was very difficult to elicit during the ensuing twelve hours, even after the temperature had dropped again. The peculiarity of reacting to heat at a given body temperature was exhausted by reaction at that temperature. These facts are worthy of more than passing interest, for here tolerance similar in its effect to the tolerance of immune processes occurred as a result of a change in a physical condition; namely, body temperature. This comparison cannot be taken lightly by students interested in the development of our knowledge of immunity.

3. The reaction could be stopped or prevented by the application of cold to the skin or by the subcutaneous injection of 0.5 c.c. of epinephrin.

4. The reaction could be elicited by either mental or physical effort when the patient was warm. This reaction could be prevented by the administration of cold applications or epinephrin. It was associated with the usual rise of temperature of one-fifth degree or more, and is believed to be actually a heat reaction.

5. It appears likely that the impulse responsible for reaction was transmitted through the medium of the nervous system, since it spread promptly from the arm when exposed to heat, even when a tourniquet was applied so tightly around the arm above the exposure that neither blood nor lymph could enter or leave the arm except through anastomoses with vessels in the bone marrow.

It is interesting, in this connection, to mention a case reported by Wallace[11] in which the patient was apparently sensitive to cold and who, following ingestion of a glass of ice cream and cold water, had an attack characterized by great difficulty in breathing, profuse watery secretion from the nose and eyes, sneezing, generalized urticaria, cyanosis and collapse. The patient gave a history of having had several similar attacks brought on by the drinking of cold water when overheated.

This case seems analogous in every sense to the one just described, except that the reaction was brought on by cold instead of by heat, and, it is believed, represents the diffuse type of reaction, which can be brought on through the action of physical agents.

10. Clark, Janet H.: The Action of Ultraviolet Light on Egg Albumen in Relation to the Isoelectric Point, Am. J. Physiol. **61**: 72 (June) 1922.

11. Wallace, T. J.: A Case of Bronchial Asthma Accompanied with Urticaria Brought on by Eating Ice Cream, Australasian M. Gaz. **28**: 436, 1909.

RELATIONSHIP BETWEEN CONTACT REACTION, DIFFUSE REACTION AND GENERAL REACTIONS

In trying to harmonize the diffuse type of reaction with the contact reactions, one possibly might surmise that an irritating agent in the contact type acts on an end-organ of some sort, producing a reaction locally, whereas in the diffuse type the irritating agent acts on an end-organ, producing a slight reaction locally and, in addition, giving rise to a reflex which stimulates the same end-organs generally as were stimulated locally by the direct action of the agent, and in this way gives rise to a diffuse reaction. The general reaction following exposure of large areas of skin in the contact cases can be attributed possibly to the absorption of poisonous bodies generated locally in the skin.

ENDOGENOUS REACTIONS

This study is interesting in relation to the possibility that patients might become sensitive to substances of endogenous origin. Foods in the alimentary tract and digestive products, bacteria and their products are, of course, exogenous in the stricter sense of the word. Surely, if these patients are actually cases of allergy, some of them must have been sensitive to a substance elaborate in their own body under the influence of a physical agent. I have recently observed two cases [9] in which urticaria and angioneurotic edema occurred coincident with the weaning of a baby. In each instance, marked relief could be obtained through the use of a breast pump, and complete relief followed the drying up of the breasts.

CONCLUSIONS

1. Urticaria similar to the urticaria caused by hypersensitiveness to foreign matter can be brought out by the specific action of physical agents, such as light, heat, cold, scratching, freezing and burns, and, in the case of heat sensitiveness, by either mental or physical exertion.

2. The patients studied were apparently sensitive solely to the action of one or two physical agents, usually only one, and were not sensitive to the foreign substances which were injected intracutaneously (some 300 in number).

3. Two types of reaction were observed: the one, a local or contact reaction; the other, a diffuse reaction. In the contact type, the rash is confined to the skin area that is affected directly by the physical agent although general symptoms are noticed when the skin area affected is large. In the diffuse type, the rash spreads rapidly from the point of application, and within a few seconds involves the skin generally.

4. Either type of reaction may involve tissues other than the skin, and give rise to symptoms such as coryza, asthma and abdominal pain.

5. Either type of reaction may cause affections of the skin other than urticaria, for scaly eczema and telangiectasis followed frequent exposure in a contact case, and at times, simple pruritus and erythema followed exposure to heat in the caloric case.

6. In obscure cases of reaction of undetermined origin (in the skin or other tissues), the specific effect of physical agents must be investigated.

7. It is believed that further study of cases of this type may throw new light on the mechanism of hypersusceptibility and immunity.

Federal Reserve Bank Building.

A NEW AND EARLY SIGN OF RUPTURED BLADDER

ROGER T. VAUGHAN, M.D.
AND
DORRIN F. RUDNICK, M.D.
Attending Surgeon and Resident in Urology, Respectively, Cook County Hospital
CHICAGO

In the past, the positive early diagnosis of rupture of the urinary bladder has been by no means easy. In many or most cases, operation has been performed too late to forestall peritonitis. A history of hypogastric injury, blood in the urine, and a persistently empty or nearly empty bladder are the indications on which an exploratory laparotomy is most often performed in such cases as have not yet developed peritonitis.

In the absence of a history of injury, this urgent surgical condition is often overlooked entirely until necropsy. We have a record of many such cases.

Up to the present, no pathognomonic sign or combination of signs has been available in this condition. Even cystoscopy fails, because of the presence of blood or inability to fill the bladder with a translucent medium. We believe, therefore, that a new and simple procedure, which permits easy positive diagnosis as soon as a complete bladder rupture has occurred, is of great practical importance. It gains added importance because it also enables one to determine whether the rupture is intraperitoneal or extraperitoneal.

Although we have only four positive cases to record, we are making our report at this time so that others may use immediately what appears to us to be a valuable and life-saving diagnostic measure.

METHOD

A sterile rubber catheter is passed by urethra, with the usual aseptic technic. If the bladder is ruptured, a few cubic centimeters of gross blood or bloody urine usually escapes. The catheter is fastened temporarily in the urethra in our cases by means of adhesive strips. The patient is moved on a hospital stretcher to the roentgen-ray department and placed before the fluoroscopic screen. Then with the patient under constant fluoroscopic observation, air is introduced through the catheter into the bladder by means of a hand bulb. Usually from 50 to 100 c.c. of air is ample. We should not hesitate to introduce half a liter or more (i. e., the normal bladder capacity), if we thought it desirable. In our cases we have employed the hand bulb or metal pump of a blood pressure instrument, because it is always at hand. We have not filtered our air through cotton, but it can easily be done.

In intraperitoneal rupture, the air is seen to escape into the abdominal cavity. With the patient lying on his left side, this air accumulates immediately under the peritoneum, letting the bowel and liver drop down away from the right abdominal wall. If the patient is then made to sit up, this free air is seen to collect under the diaphragm, between it and the liver. The air bubble constantly seeks the highest point of the abdominal cavity.

In extraperitoneal rupture, the air escapes into the loose perivesical areolar tissue, and is seen to spread along fascial planes, outside the peritoneal cavity. In one of our cases, a considerable part of the air was seen to creep beneath the skin of the abdominal wall, and in another case it came to lie between the muscular layer

of the wall and the peritoneum without any appreciable amount escaping beneath the skin.

In negative cases, the air accumulates in and distends the bladder, giving it the regular vesical outline, except in cases associated with pathologic changes such as prostatism, tumors or calculi, with which we are not concerned in this report. The injected air, however, does enable us to identify these cases, should they be confused with rupture because of concurrent trauma,

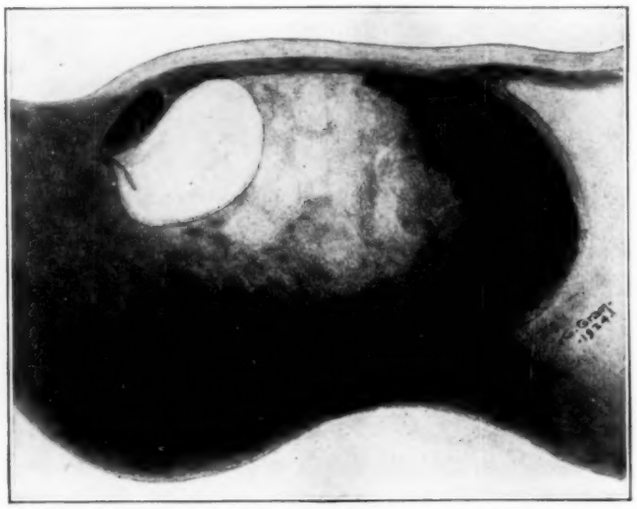

Fig. 1.—Normal bladder distended with air. In the illustration, the patient is viewed from the side in the dorsal recumbent position.

hematuria or abdominal pain. It also differentiates rupture of the kidney from bladder rupture.

REPORT OF CASES

CASE 1.—B. V., a white man, aged 50, admitted to the psychopathic department, April 10, 1924, was well nourished and developed, and not acutely ill. The temperature was 98.6; pulse, 80; respiration, 24. Mental and physical examination gave the findings of taboparalysis. The pupils did not react to light. The knee jerks were absent. Memory for past and present events was poor. Retention was poor. There were no delusions or ideas of grandeur. Pandy's test for globulin in the cerebrospinal fluid was four plus; lymphocytes were 110; the Wassermann reaction was four plus.

On the night of admission to the hospital, the patient attempted to commit suicide by strangling himself, and required restraint. He continued to be noisy and restless during the next four days, and required constant restraint and sedatives; but his general physical condition remained the same.

On the fifth day, the patient's general condition was not so good. His face was flushed. He perspired freely. His temperature was 99 F., but he did not complain of pain. On the sixth day he began to have involuntary evacuations, and his general condition became worse, but still he did not complain of pain.

On the seventh day, the temperature was 102; pulse, 124; respiration, 30. The abdomen was distended. The patient rapidly became worse during the day, and by afternoon was cyanotic and his pulse became practically imperceptible. Examination at that time revealed findings as given above, plus diffuse abdominal tenderness and distention. No external evidence of injury was found. The patient was catheterized and a small amount of bloody urine was obtained. At this time, we were called in for surgical consultation. Rupture of the urinary bladder was at once suspected, and the patient accordingly examined with the fluoroscope. Air injected into the bladder through the catheter was seen immediately to enter the free peritoneal cavity and float up through the intestinal coils to the uppermost point of the cavity and to shift with shifting of the patient's position (Fig. 2). Because the patient appeared to be dying, an operation at this time was not undertaken. He died nine hours later.

The coroner's necropsy substantiated the diagnosis of intraperitoneal rupture of the urinary bladder. It was probably on a traumatic basis, because intramuscular hemorrhage was found in the suprapubic region at necropsy.

CASE 2.—J. C., a man, aged 29, a member of the fire department, injured by a falling stone wall in the Curran Hall disaster, April 18, 1924, was brought to the hospital as an emergency case and was conscious, but in shock. He complained of severe pain in the right hip and in both sides of the lower abdomen. He had a constant desire to urinate, but was unable to do so.

There was a superficial laceration over the right eye, with no injuries about the neck or chest. The heart and lungs were normal. The abdomen was diffusely tender and somewhat rigid, the tenderness being most marked in the iliac and lumbar regions. The kidneys were not palpated. Crepitus and pain were elicited over the right iliac crest. There was a fracture of the right thigh, with abnormal mobility, angulation, crepitus and extreme pain. The reflexes appeared normal. The patient could not void urine, and so was catheterized; a few cubic centimeters of gross blood was withdrawn. Rupture of the bladder was at once suspected. The catheter accordingly was left in situ and fixed by adhesive strips. The patient was moved to the roentgen-ray department in his bed and examined in bed by means of the upright fluoroscope. Air injected into the bladder through the catheter was seen to escape immediately from the bladder into the loose perivesical areolar tissue and dissect its way upward until it appeared beneath the skin as a thin, radiolucent layer between skin and muscle (Fig. 3). The patient was moved to the operating room, but his condition was so poor, the pulse being imperceptible, that it was decided best to "combat shock" and first give stimulants and transfusion with physiologic sodium chlorid solution. There was no improvement. The patient failed rapidly, and died four hours later. No necropsy was performed by the coroner's physician.

CASE 3.—J. C., a man, aged 38, a member of the fire department, injured in the same accident as the preceding patient, was brought to the hospital as an emergency case and was conscious but in shock. He complained only of pain about the pelvic region.

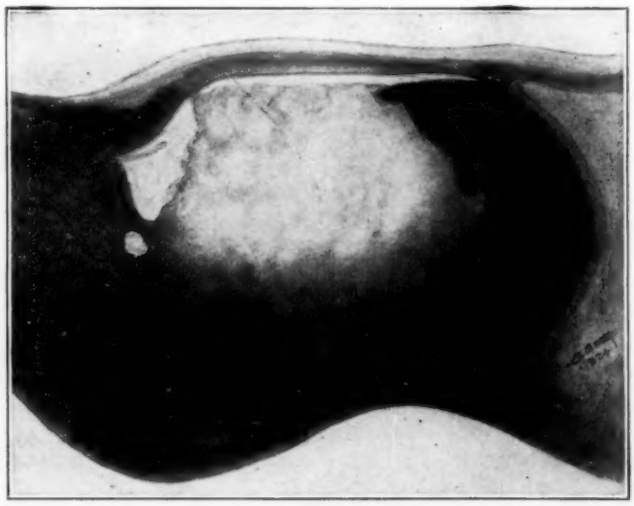

Fig. 2.—Intraperitoneal rupture of bladder: Bladder partly filled with air, some of which is seen escaping from the tear in the bladder wall and finding its way upward between the coils of intestine to form a translucent layer just beneath the peritoneum of the anterior abdominal wall. This layer of air separates the parietal peritoneum from the intestinal coils and the liver.

He was pale, with a cold and clammy skin. There were two small lacerations of the scalp, but no evidence of fracture of the skull or broken neck. A small laceration of the skin over the left thorax with local surgical emphysema and tenderness was noted (fractured rib). The heart tones were distant and feeble. The abdomen was slightly distended and very tender on palpation in both lower quadrants. The skin over the symphysis pubis was bruised, and on palpation tenderness and

bony crepitus were elicited. A few drops of blood dripped from the urethral meatus. No injuries of the extremities were found. The patient could not void urine, and so was catheterized and a few cubic centimeters of urine mixed with blood was withdrawn. The catheter was fastened in situ. The diagnosis was fractured pelvis with probable rupture of the urinary bladder; laceration of scalp, and laceration of the lung with surgical emphysema.

Air was injected into the bladder through the catheter, and, by means of the fluoroscope, was seen to escape immediately

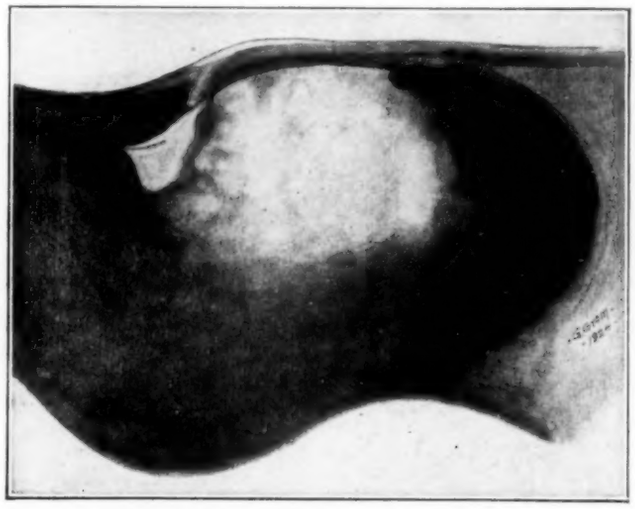

Fig. 3.—Extraperitoneal rupture of bladder: Bladder partially distended with air, some of which is seen escaping from the rent in the vesical wall upward through the torn soft parts and forming a translucent layer just beneath the skin of the hypogastrium.

from the bladder into the loose perivesical tissue and dissect its way upward between the peritoneum and the muscle wall, with no air entering the peritoneal cavity (Fig. 4).

A positive diagnosis of extraperitoneal rupture was thus established, and the patient was taken at once to the operating room.

Under local anesthesia, a suprapubic midline incision was made, and the peritoneal reflection wiped upward from the anterior bladder wall. The laceration in the bladder wall was easily found by following down the air bubbles, which were escaping from the bladder through the extravasated urine and blood. Digital exploration revealed a fracture of the ramus of the pubis. By digital exploration of the bladder through the rent in its lower anterior wall, no other lacerations were found. A large rubber suprapubic drainage tube was installed, and the laceration of the bladder closed about it. The extravesical space was packed with iodoform gauze to control any further hemorrhage.

The patient remained in rather critical condition, developed pneumonia eight days later, and died. A postmortem examination was not performed by the coroner's physician.

CASE 4.—M. A., a white man, aged 41, brought to the hospital, April 21, 1924, as an emergency case, complained of severe abdominal pain, of twenty-seven hours' duration. Previous to the onset of the pain, he had been automobile riding with some friends and had made several stops, during which a considerable quantity of beer was consumed. He denied being intoxicated or having been injured in any way. On arriving at home, he had a bowel movement, and during this act he was seized with the pain and also passed a small amount of bloody urine. Incessant hiccup and vomiting began four hours previous to admission. He had not had a bowel movement or voided urine since the onset of the pain.

The patient was well nourished and developed. The temperature was 100.4; pulse, 126; respiration, 22. There were no important physical findings except in the abdomen, where marked gaseous distention and generalized tenderness and muscular rigidity were noted. Partial obliteration of the liver dulness (tympany and shifting dulness in both flanks were found. Borborygmi were present. Rectal examination was negative. The patient was unable to void urine, and so was catheterized, although there was no bladder distention. A few cubic centimeters of urine containing blood was obtained. Rupture of the bladder was at once suspected. The catheter accordingly was left in situ and fixed by adhesive strips. Air injected into the bladder through the catheter was seen by the fluoroscope to enter the free peritoneal cavity and float up through the intestinal coils to the uppermost point of the cavity, and shifted with shifting of the patient's position (Fig. 2). A positive diagnosis of intraperitoneal rupture was thus established, and the patient was taken at once to the operating room.

Under general anesthesia, a lower abdominal midline incision was made, and the peritoneal cavity opened. A considerable quantity of blood and urine, and a diffuse peritonitis, were found. Digital exploration revealed a large laceration of the bladder in its posterior-inferior quadrant. At this point, the patient died. No necropsy was performed by the coroner's physician.

CASE 5.—J. F., a white boy, aged 16, brought to the hospital, Jan. 8, 1924, two and one-half hours after being injured, had slipped and fallen while walking down the street with his sister, striking his left side against the curb stone. He was aided to his feet by his sister and walked a block to his home. Half an hour after the injury, the patient began to complain of pain in the left lumbar region and left lower quadrant of the abdomen. He vomited. A small amount of grossly bloody urine was voided before entrance to the hospital.

The patient was ashen gray. The pulse was 100 and very feeble, with rapid, shallow respirations. The patient was in extreme abdominal pain. There were no important physical findings, except tenderness and rigidity over the left lateral lumbar region, where a vague mass was palpated. The patient was unable to void urine after admission to the hospital and so was catheterized, although there was no bladder distention. A few cubic centimeters of urine containing blood was obtained. A tentative diagnosis of left ruptured kidney was made. The urethral catheter was left in situ and fixed with adhesive strips. The patient was moved to the roentgen-ray department. Air injected into the bladder was seen by means of the fluoroscope to distend it normally, substantiating the diagnosis of ruptured kidney by eliminating the possibility of rupture of the bladder (Fig. 1).

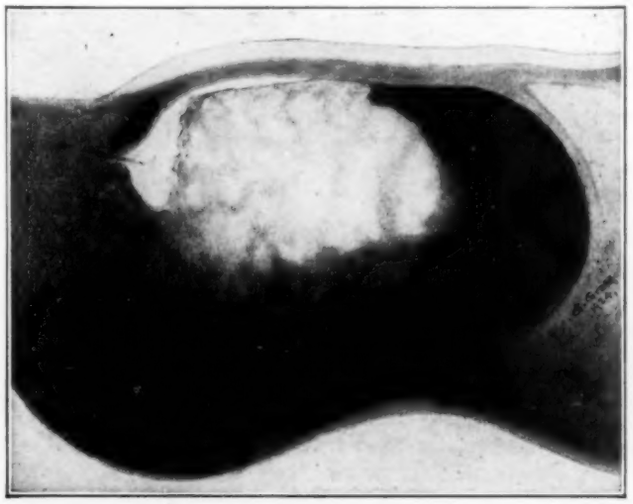

Fig. 4.—Extraperitoneal rupture of bladder: Bladder partly distended with air, some of which is shown escaping from the tear in the vesical wall. Because the muscles were not torn in this case, the escaping air is confined to the space of Retzius anteriorly and the neighboring peritoneal areolar tissue. The translucent layer of air here lies between the posterior rectus sheath and the parietal peritoneum.

The patient was treated expectantly by a compression Scultetus bandage over the left lumbar region, and given saline transfusions. He made an excellent nonoperative recovery without developing any apparent urinary extravasation.

COMMENT

Our reasons for not operating on this patient need not be gone into here since the indications and contra-

indications for operation in renal injuries form a sufficiently extensive subject to deserve separate treatment and are outside the purpose of our present article.

The illustrations accompanying these case reports are copied from our fluoroscopic tracings on glass. We are unable as yet to show roentgenograms of the condition, since all the cases have been observed at night, when roentgenographic service is not readily available. Consultation with various surgeons, urologists and roentgenologists and a careful search of the recent literature of bladder rupture fail to reveal that our method has been previously described, used or suggested.

CONCLUSIONS

1. Injection of air into the urinary bladder allows a positive early diagnosis of vesical rupture by the roentgen ray, and therefore should diminish mortality substantially.

2. Our method differentiates between intraperitoneal and extraperitoneal rupture, allowing the surgeon to avoid opening the peritoneal cavity in extraperitoneal ruptures, in which it is best for the peritoneum to remain intact.

3. Thus far we have no reason to believe that this procedure carries any added risk to the patient either from air embolism or from infection, if used with ordinary asepsis and clinical judgment. It adds no discomfort to the patient.

FURTHER OBSERVATIONS ON SICKLE CELL ANEMIA*

V. P. SYDENSTRICKER, M.D.
AUGUSTA, GA.

Sickle cell anemia was first described, fourteen years ago, by Herrick.[1] Subsequent observers, up to a year ago, had reported only three additional cases.[2] Last year, I reported observations on eleven instances occurring in two families;[3] a simultaneous report by Huck[4] recorded seventeen cases found in three families. Our series at the present time comprises eighty cases. All of the reported instances have occurred in negroes.

Sickle cell anemia is a familial and hereditary disease showing no sex preference and probably confined to the negro race. Our series includes ten family groups; in fact, in every case in which it has been possible to examine the relatives of patients with this condition, a familial incidence has been found. The disease is present and recognizable at birth; on two occasions, blood from the cord and from the proper circulation of infants of "sickle cell" mothers has been found to present the specific changes. "Sickle cell anemia" is a name that poorly describes the syndrome to which it is applied. The condition is probably a familial and hereditary defect of the spleen and the blood-forming organs, with a resulting change in the erythrocytes which predisposes to hemolysis and phagocytosis. Anemia, when present, is the result of excessive blood destruction, activated perhaps by factors that in a normal person would be innocuous.

There are resemblances between this disease and familial hemolytic icterus. The jaundice in both is due to increased red cell destruction; the type of anemia is similar, and the evidences of erythropoietic activity seen in the blood are much alike. Both diseases exhibit hemolytic crises with increase in jaundice and in pigment excretion, with diminution in the red count and hemoglobin, and with abdominal pain referable to the spleen. Conspicuous differences are: the specific type of poikilocytosis in this disease; the changes that occur in the erythrocytes in vitro and post mortem; the unusual susceptibility of the erythrocytes to phagocytosis, and the absence of any diminution in their resistance to hypotonic salt solutions. The frequent occurrence of leg ulcer in this condition is an unexplained feature of interest. Pathologically, the changes in the spleen and the bone marrow are striking, and have been sufficiently constant to warrant the assumption that they are specific.

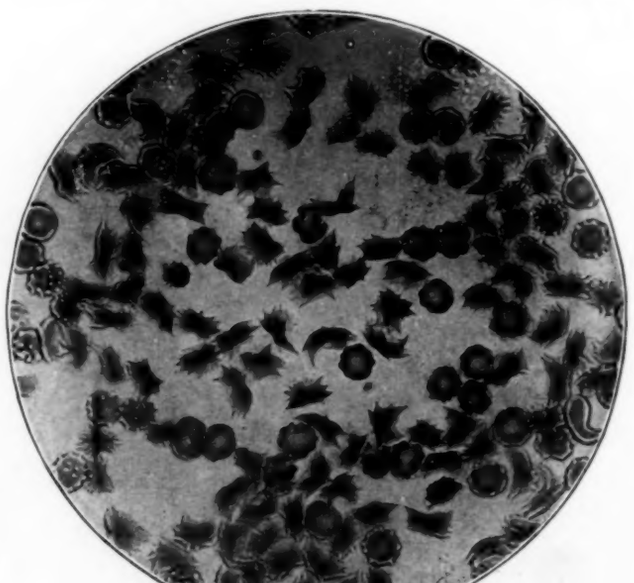

Fig. 1.—Blood in latent phase: fresh preparation, eighteen hours.

There has been no demonstrable association between the occurrence of this disease and the presence of any infection or infestation. Eight of our patients have been syphilitic; four had malaria; two were infested with *Strongyloides stercoralis,* two with *Necator americanus* and one with *Ameba histolytica.* Treatment of these conditions had no effect on the blood picture. Blood, urine and stool cultures by various methods have been consistently negative. Dark field examination of the blood and, in two instances, of the bone marrow was without results. Animal inoculation experiments have also been fruitless.

TWO PHASES

The disease presents itself in two phases: the latent, in which symptoms are few, physical signs only suggestive, and special methods of blood examination necessary for its recognition; and the active, in which

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* From the department of internal medicine, University of Georgia Medical Department.

* Read before the Section on Practice of Medicine at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

1. Herrick, J. B.: Peculiar Elongated and Sickle-Shaped Red Blood Corpuscles in a Case of Severe Anemia, Arch. Int. Med. **6**: 517 (Nov.) 1910.

2. Washburn, R. E.: Peculiar Elongated and Sickle-Shaped Red Blood Cells in a Case of Severe Anemia, Virginia M. Semi-Month. **15**: 490, 1911. Cook, J. E., and Meyer, J.: Severe Anemia with Remarkable Elongated and Sickle-Shaped Red Blood Cells and Chronic Leg Ulcer, Arch. Int. Med. **15**: 644 (Oct.) 1915. Mason, V. R.: Sickle Cell Anemia, J. A. M. A. **69**: 1318 (Oct.) 1922.

3. Sydenstricker, V. P.; Mulherin, W. A., and Houseal, R. W.: Sickle Cell Anemia, Am. J. Dis. Child. **26**: 132 (Aug.) 1923.

4. Huck, J. G.: Sickle Cell Anemia, Bull. Johns Hopkins Hosp. **34**: 322 (Oct.) 1923.

the symptoms and physical signs are distinctive and the blood picture obvious. The latent phase is much more common of the two, the ratio being 9:1 in our series. The two phases occur in the same family; in our experience, active cases have been found in the children and grandchildren of persons presenting the latent phase. The same person has been observed to pass from the active into the latent phase.[5]

In the latent phase of the disease, the symptoms are occasional muscle and joint pains, attacks of epigastric or left hypochondriac pain, sometimes associated with nausea and vomiting, and periods of weakness and dyspnea. The physical signs are greenish yellow scleral discoloration of varying degrees of intensity, general glandular enlargement and slight enlargement of the liver. The spleen has been felt in eleven of seventy-one patients. Leg ulcer has been present five times.

In the active cases, the symptomatology is remarkably constant. Dyspnea, palpitation and weakness referable to the anemia are always present. Muscle and joint pains of considerable severity occur at frequent intervals. There are frequent attacks of nausea and vomiting, associated with epigastric and left hypochondriac pain. There is a low fever, and there are frequent night sweats. The physical signs are striking. The patient is poorly nourished, with marked retardation of development. The sclerae present a greenish yellow which varies in intensity, being most marked during the abdominal crises. The mucous membranes are pale; the tongue shows no changes beyond pallor. There is general lymphadenoid hyperplasia. The heart shows the changes commonly associated with anemia. The liver is constantly enlarged. The spleen has never been felt except in the presence of malaria. The legs show ulcers or the scars of ulcers, and edema.

The urine in both types of cases has a low specific gravity; albumin is often present in traces. Urobilin is constantly present, in the latent cases in relatively small amounts, in the active cases in large quantities. Bile has not been found in our cases. The stools show nothing of note aside from a constant increase in urobilin excretion. The gastric contents show up significant changes in latent cases; in active cases there is a moderate reduction in acidity; we have not found a total achlorhydria in any case.

The blood in latent cases shows few abnormalities on routine examination. Frequently there is no anemia or leukocytosis. Always there is anisocytosis with numerous microcytes; there is some polychromasia; rarely, a normoblast may be seen. Careful search of stained smears shows phagocytosis of erythrocytes by large mononuclear cells in almost every case. Examination of sealed fresh preparations after from eighteen to twenty-four hours shows the development of the extraordinary crescentic and stellate forms which characterize the disease, with active phagocytosis of these cells by the endothelial mononuclears and at times by the polymorphonuclear cells (Fig. 1). There is often an increase in the reticulocytes and in the blood platelets. The serum contains traces of urobilin. There is no change in the inorganic constituents of the serum.

In the active phase, the blood picture is characteristic. The red cells are reduced to the neighborhood of two millions, with proportionate reduction in the hemoglobin. There is marked leukocytosis, averaging 20,000. The morphology is specific; many sickle cells are present in smears and in fresh preparations, and there is marked poikilocytosis aside from the sickle cells, with many microcytes and fragmentary forms (Fig. 2). There are many normoblasts; megaloblasts are rare; in three cases, nucleated sickle cells have been observed. Many of the red cells contain nuclear fragments. Polychromasia is common, but stippled basophilia is seldom seen. The reticulocytes are increased, constituting from 15 to 40 per cent. of the erythrocytes. Phagocytosis is always demonstrable.

The white blood cells show few abnormalities. There is a marked shift to the right of Arneth's formula, and many of the polymorphonuclears show the nuclear excrescences described by Emmel. The differential formula shows only slight variations from normal despite the leukocytosis; a few myelocytes are usually found, and some cases have shown a moderate increase in the eosinophilic and the basophilic cells.

When sealed fresh preparations are made, changes in the erythrocytes go on with great rapidity, the relatively normal cells assuming crescentic, fusiform and

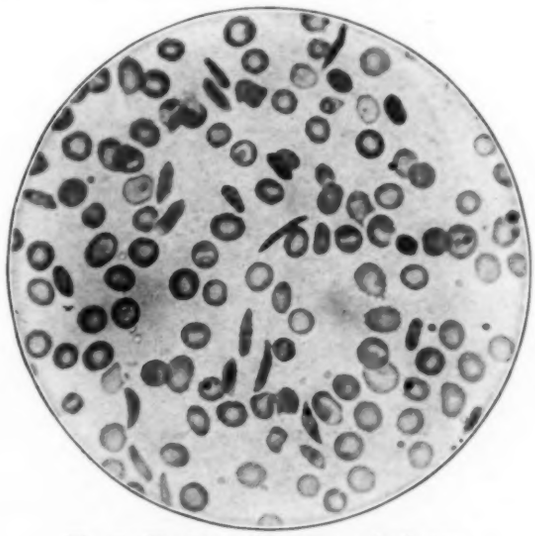


Fig. 2.—Blood in active phase: stained smear.

stellate shapes. Even the smallest microcytes and fragmentary forms undergo this change; phagocytosis is very active.

The serum in these outspoken cases of the disease is deeply yellow, and contains large amounts of bilirubin. The phenomenon of auto-agglutination has been present in four of our cases; using the patients' washed cells and centrifugated serum, agglutination took place very rapidly and was not influenced by temperature changes or by agitation. The resistance of the erythrocytes to hypotonic sodium chlorid solutions is slightly increased. In no case has hemolysis occurred above 0.46 per cent. There is regularly a lowering of the concentration in which complete hemolysis takes place to from 0.26 to 0.22 per cent. Resistance to bile and bile salt hemolysis is slightly diminished in all cases in which these tests have been applied. We have found no variation from normal in oleate hemolysis. The changes in shape of the erythrocytes in vitro are accelerated by heat and temporarily inhibited by cold. Bile and bile salts in very high dilutions cause definite acceleration. Substances poisonous for the red cells prevent the changes.

On one occasion, 200 c.c. of blood from a patient with the latent form of the disease was given to a subject with normal blood. There was no reaction and

5. Emmel, V. E.: A Study of the Erythrocytes in a Case of Severe Anemia with Elongated and Sickle-Shaped Red Blood Corpuscles, Arch. Int. Med. **20**: 586 (Oct.) 1917.

no hemoglobinuria following the transfusion. The recipient's blood was examined daily thereafter for the presence of cells that underwent the characteristic change in fresh preparations. These were found readily, the numbers varying from 12 per thousand on the day following transfusion to 9 per thousand on the twenty-third day, when the subject was removed from observation. These cells in the circulation of a normal compatible person preserved the property of altering their shape in the specified manner, and seem to have been fully as viable as normal cells (Fig. 3). A point of interest was that, while these cells were phagocyted freely by the recipient's leukocytes in vitro, there was no evidence in stained smears that phagocytosis took place in the circulation.

NECROPSIES

Necropsies have been performed on five of these patients, two with the active type and three with the latent type of the disease. The bone marrow of a third active case was secured at operation. The two active cases occurred in children, aged 6 and 13 years, respectively; the first died in nephritic coma, the second as the result of a spontaneous meningeal hemorrhage.

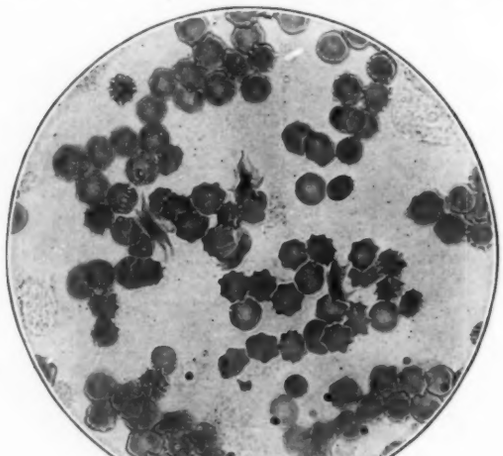


Fig. 3.—Sickle cells in blood of normal recipient, twenty-one days after transfusion.

Aside from the changes due in the first instance to subacute parenchymatous nephritis, the visceral abnormalities were strikingly alike.

The thymus was persistent and large, weighing 21 gm. in the first case, and 29 gm. in the second. Histologically, the gland tissue was normal. There was general lymphadenoid hyperplasia, without microscopic changes in the glands.

The liver in the first case was disproportionately large, weighing 690 gm. There was slight cloudiness of the cut surface, and the architecture was blurred. Microscopically, the liver cells were poorly defined and more granular than normal; there was slight increase in the periportal connective tissue, with a little round cell infiltration. There were numerous small scattered areas of brown, granular, iron-free pigmentation, with similar pigment in the endothelial cells of the sinuses. In the second case the liver was likewise large, weighing 1,636 gm. The cut surface was cloudy and of a brownish red; the structure was seen with difficulty. On microscopic examination, there was an increase in the periportal connective tissue with focal collections of lymphocytes and polymorphonuclear cells, both here and in the liver lobules. There was a large amount of iron-free brown pigment in granules and acicular masses. The liver cells had a reticulated appearance.

The spleen in the first case was very small, weighing 7.9 gm. The pulp was diminished in amount, the malpighian bodies barely visible, and there were many small dark red areas throughout. Microscopically, the capsule was thickened and the trabeculae were large. The malpighian bodies were small, poorly defined and distorted, and were surrounded by areas of intense congestion. There was an excessive amount of blood in the pulp, unevenly distributed in various congested areas, in addition to which there were many actual hemorrhages, some recent, some old, and the pigmented scars of others still older. There was much fine, dark brown, granular, iron-free pigment everywhere. There was a marked iron reaction in many of the scars, in the perivascular connective tissue, and in the walls of the arterioles. In the second case the spleen was also small, weighing 45 gm. On section, the pulp was scanty and the malpighian bodies could not be seen. There were numerous small bright red areas scattered throughout. Under the microscope the organ seemed stuffed with blood, the malpighian bodies being represented by small collections of lymphoid cells surrounded by zones of intense congestion. The trabeculae were large and numerous. In many of the septums and in the walls of some of the vessels were collections of greenish, crystalline plates and clumps of brown granules, which gave the iron reaction (Fig. 4). Throughout the spleen there was much dirty brown non-iron-containing pigment, free and in large endothelial cells. There were a few foreign body giant cells near the crystalline plaques, some of which had engulphed pigment. The sinuses were not recognizable. (The spleen was seen in a third case in which splenectomy was attempted; its size was estimated at 4 by 6 cm. The patient was 26 years old.)

The kidneys in the first case showed the lesions of subacute parenchymatous nephritis; in the second there were no structural changes. In both there was much brown iron-free pigment in the tubules, and a smaller amount in the glomeruli.

The bone marrow in these two cases and in the third active case, in which it was secured during life, was abundant, bright red and perhaps thinner in consistency than normal. In sections and smears there was a marked diminution in the amount of fat, with relative increase in the leukocytic elements. An increase in the erythrocytes was also apparent, the reticular spaces as well as the capillaries being filled with sickle shaped and often remarkably elongated and distorted red cells. In smears, many bizarre, elongated erythrocytes and erythroblasts were seen, as well as numerous filamentous and fragmentary forms. In sections fixed in Zenker's solution, many cells were seen containing nuclear fragments and bodies resembling Cabot rings (Fig. 5). There was some brownish black pigment in fine and coarse granules, mainly extracellular, but occurring also in large mononuclear cells.

The chronic leg ulcer that was present in the second of these cases showed extreme round cell infiltration of the skin and subcutaneous tissues adjacent to the ulcer. The base of the ulcer was filled with granulation tissue, in which there was a moderate degree of polymorphonuclear infiltration. A few giant cells were seen.

In the three cases of the latent type that came to necropsy, death was caused in one by suppurative pyelo-

nephritis; in another, by myocardial degeneration and bronchopneumonia; in the third, by suppurative peritonitis following a gunshot wound of the abdomen. In spite of the many changes due to other diseases, the organs of these patients showed certain findings in common with those already described. (These patients were, respectively, 78, 72 and 32 years of age.)

In all there was deep orange pigmentation of the fat. No thymic remains were found. There was moderate lymphadenoid hyperplasia.

Fig. 4.—Section from spleen: active phase; iron-containing pigment in and around walls of splenic arterioles.

The livers of these patients showed no striking gross changes beyond slight enlargement and cloudiness of the cut surface, without total loss of structural details; all cut with increased consistency and presented a brownish mottled color. Microscopically, the cell outlines were blurred, the periportal connective tissue was increased in amount and showed a moderate grade of lymphocytic infiltration. There was diffuse, iron-free pigmentation of both the liver cells and the Kupffer cells.

The spleens varied in size, weighing 460, 110 and 280 gm. Features in common were the increase in consistency, the very dark red of the cut surface, and the absence of visible lymphoid nodules. In the first case there were several infarcts of varying ages. Microscopically, the spleens seemed overfilled with blood. The trabeculae were prominent; the malpighian bodies were small, irregular and surrounded by areas of intense congestion. The sinuses were filled with blood, as were the spaces of the pulp to a striking degree. The endothelial cells of the sinuses were heavily laden with brown, iron-free pigment. There was much of this pigment scattered throughout the spleen, free and in endothelial cells. No phagocytosis of erythrocytes in the spleen was seen.

The kidneys showed various changes, but in all there was much brown pigment in the tubular epithelium.

The bone marrow was unusually abundant, bright red, and thin in consistency. In sections there was less fat than usual. The reticular spaces were filled with erythrocytes, intimately mingled with the leukocytic constituents of the marrow. There was perhaps slight hyperplasia of the proper marrow elements. In smears, there was an apparent leukocytic predominance without evidence of active hyperplasia. The erythroblasts were relatively normal, and while there were many fragmentary and occasional bizarre forms, the picture was much less striking than in the active cases.

PATHOLOGIC CHANGES

The pathology in general we interpret as: (1) a peculiar change in the erythrocytes which causes them to assume bizarre forms, the so-called sickle cells; (2) an ability of these cells to penetrate the reticular tissues of the bone marrow and the pulp of the spleen, perhaps even the walls of the splenic arterioles; (3) increased erythrocyte destruction, most marked in the spleen.

The most striking feature is the shape of the red blood cells in all the tissues of the body. This change is most marked in the bone marrow, in which many of the cells are excessively attenuated. In sections, few of the erythrocytes are round; many are fusiform and sickle-shaped, the remainder present all sorts of bizarre forms similar to those seen in the fresh blood preparations that have been allowed to stand for several hours.

The spleens appear packed with erythrocytes, there being more in the spaces of the pulp than in the sinuses. In the so-called active cases, this change assumes the proportions of hemorrhage. There is fibrosis of the spleen, and there are large focal deposits of iron-free pigment. The elastic tissue of many of the splenic arterioles, and the elastic fibers in some of the fibrous tissue, give the iron reaction; indeed, in routine hematoxylin-eosin preparations these areas take a color similar to the special elastic tissue stain.

In the bone marrow, the intercapillary spaces are rich in erythrocytes mingled with the leukocytic elements. No iron reaction is obtained in the pigment here. A further manifestation of this abnormal escape of erythrocytes from the proper blood channels was seen in the various stages of subpial extravasation in the patient dying from meningeal hemorrhage.

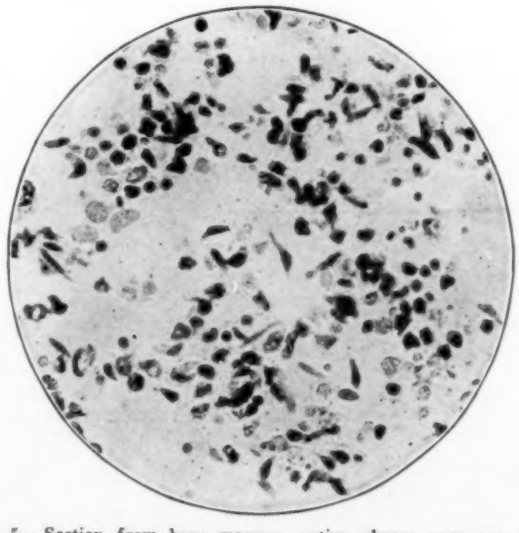


Fig. 5.—Section from bone marrow, active phase: numerous bizarre erythrocytes and erythroblasts.

The destruction of blood is apparently most marked in the spleen, in which an exceedingly large amount of pigment is present, free and in phagocytes. Pigment is also present in excess in the liver, both in the hepatic cells and in the Kupffer cells. In all cases, it can be found in the endothelium of the capillaries of various organs. It is a constant finding in the collecting tubules of the kidneys, and, in the active cases, in the glomeruli as well. This pigment, with the exception of that already described in the spleen, is iron free.

ABSTRACT OF DISCUSSION

DR. J. B. HERRICK, Chicago: Several new phases have been brought out since the time, fourteen years ago, when I described what, for want of a better term, I called sickle cell anemia. The new phases are very important. The first fact

Fig. 1 (Case 2).—Appearance of patient in December, 1923, during most complete remission since onset (illustrating article by Dr. Beach on opposite page).

is that the disease is hereditary and familial. This was suggested by Dr. Emmel, who studied carefully the cases of Cook and Meyer in 1917, and has been later emphasized by Sydenstricker and by Huck. Another point is the remarkable phenomenon that occurs in vitro. The fact that we can get, in a specimen of the blood of these negroes, morphologic changes under the microscope similar to those seen in acute cases shows the relationship of the latent type to the acute type of the disease. Dr. Sydenstricker has made for the time being a good working classification, dividing the cases into the active and the latent types. Another important fact is that apparently we have not, what I first thought we had, a blood condition arising from, or symptomatic of some other disease, but we have a disease sui generis. The facts all seem to point toward the conclusion that the disease is found only in the negro, that it is familial in type, and that it is characterized by peculiar extravascular changes, by remarkable morphologic forms and a uniform pathology. At first we thought we had an exaggerated type of poikilocytosis, but no one who has studied the fresh or the stained specimen can help being convinced that this peculiar abnormal deformity is characteristic of this condition alone and not merely an exaggerated anisocytosis or poikilocytosis. In the acute form, at least, the clinical picture runs true to type. The case I described, the one from Dr. Dock's ward, and others described more recently are all repetitions of the first type, which presents a picture just as definite as that of myeloid leukemia or of typhoid fever. And Dr. Sydenstricker has now laid the foundation for a definite pathology and pathologic anatomy. Yet no one as yet knows its etiologic factors. One interesting feature is the occurrence of leg ulcers. We do not know any explanation for these leg ulcers. My patient had had yaws (frambesia) as a child, and I would suggest to those who are interested that an investigation be made in the tropics, where frambesia prevails, to see whether there is any relation between these two diseases. Recently a study of frambesia was reported in the *Bulletin* of the Johns Hopkins Hospital, but I did not see any report of blood examinations that would throw any light on this condition. I wish to congratulate the author of this paper for having so fully described this condition. I hope he will continue his investigations. I must confess to being pleased at having isolated that solitary case fourteen years ago, and at now finding that the clinical features are in all essential respects as I then described them.

DR. W. A. MULHERIN, Augusta, Ga.: Sickle cell anemia was a moot question until Dr. Sydenstricker made an examination of 100 white people and 100 negroes. He has proved that (1) it is a definite clinical entity; (2) it has a characteristic blood picture, and (3) it has a definite pathology. I believe it is a heredofamilial disease, caused by congenital defects in the spleen and blood-forming organs, and that this defect gives rise to changes in the erythrocytes and causes the pathologic process. In regard to the diagnosis: There is the active phase and the latent phase of the disease. These phases can be distinguished by the fact that the blood from an active case shows sickling in the red blood cells, whereas, in the latent stage, sickling is absent at first but can be seen after the specimen is 4 hours old. In the active cases the patient is very sick, with marked anemia, greenish-yellow eyeballs, glandular enlargement, pain in the splenic region and epigastrium, and what the negroes call "misery" in the legs. The patient with a latent case is in fairly good health, and has no active symptoms, the only sign being greenish-white eyeballs. Systematic examination of the blood of negro patients will show more sickle cell anemia than is generally supposed to exist. There are only nine contributions to the literature on sickle cell anemia. Dr. Sydenstricker has done more work on this condition than any other observer in America, and he regards the percentage of cases as 0.6. The prognosis is important. The disease is not dangerous to life in the latent stage. In the child, it is a dangerous disease. Adults do not die of the disease. The active cases are most frequent in childhood, and it is a question whether we ought not to confine our efforts to preventing the latent cases from becoming active. If these patients can be protected until they reach adult life, they are safe.

Fig. 2 (Case 2).—Appearance of patient in December, 1923, during most complete remission since onset (illustrating article by Dr. Beach on opposite page).

DR. V. E. EMMEL, Evanston, Ill.: We seem to be obliged to add another entity to the already baffling group of diseases showing pathologic changes in the blood. The first case reported was recognized by the sickle shaped corpuscles in the circulating blood. That was in 1914. Cook and Meyer found that this transformation was not confined to the bone marrow, but also took place in the circulating blood. We

then expected that we should be able to observe this change under the microscope. Samples of blood were taken from the patient and studied in vitro. It was found that the transformation was more pronounced in many cases, sometimes up to 100 per cent. increase. Subsequently, in the same patient, the sickle cells disappeared from the circulation, but examination in vitro showed that the reaction still persisted. These cases were controlled with leukemias and anemias, with negative results. The father of the patient had normal blood, apparently, but when tested in vitro the blood proved positive. This showed the familial aspect of the disease. Further studies have confirmed the conclusions arising out of individual studies. They have confirmed the in vitro tests and have shown the markedly hereditary character of the disease. While we are studying cytologic conditions, and in vitro tests, we are far from knowing more of the fundamental factors involved.

DR. V. P. SYDENSTRICKER, Augusta, Ga.: We are in ignorance as to the etiology of the condition, nor do we know why the leg ulcers occur. The ulcers are simply an inflammatory reaction. The sections show no organisms other than the ordinary pyogenic invaders.

EDEMA OF THE EYELIDS *

S. JUDD BEACH, M.D.
PORTLAND, MAINE

Although edema of the lids is a trivial incident in the course of many diseases, those extreme instances that attain disfiguring proportions with no obvious origin constitute a major problem in diagnosis. I am submitting herewith the report of two such cases, curiously similar in appearance, but otherwise unrelated. When I first saw the patients, both showed trifling increase in temperature and malaise, with no local evidence of inflammation and no albuminuria. Yet they turned out to be diametrically opposite in origin. The first was a by-product of systemic infection; the second, a local disorder.

REPORT OF CASES

CASE 1.—A woman, aged 22, was referred to my clinic at the Maine Eye and Ear Infirmary, Sept. 22, 1923, complaining of swelling in the lids and cheeks of a few days' duration, usually greater on the right side, and subsiding slightly during the day. There had been no pain or redness. The only subjective complaint was a slight stiffness of the face.

Inspection showed symmetrical swelling of the lower lids and cheeks, somewhat reminiscent of mumps. It was marked just below the zygoma, but on palpation appeared not to involve the parotid. There was no tenderness. The conjunctiva was normal, and the tear ducts patent to collyria. The teeth appeared sound. Examination of the urine disclosed no albumin, sugar or casts. The temperature was 99; the pulse, 92. Except for the story that the right side had usually been the larger, there was no indication of local origin.

The patient was sent to the rhinologic clinic, and returned with a complete negative report by Dr. S. E. Fisher.

Two days later she reported again with slightly less swelling but a little increase in fever; the temperature was 101; the pulse, 96. There were still absolutely no local symptoms aside from the swelling. Lassitude and the disproportionately low pulse were suggestive of typhoid. Blood was taken for Widal's test, and the patient was referred to her own physician for general physical examination.

For the subsequent history I am indebted to Dr. J. L. McAleny. Finding the spleen a finger's breadth below the costal border, and the temperature 101 and pulse 100, he was not content with the negative report on the first Widal test and sent in a second specimen. Though it was again negative for typhoid, his suspicions were justified, as it this time agglutinated paratyphoid. That was the tenth day of the disease. At that time the edema of the face had entirely disappeared. There was no complaint of lassitude after the second visit to the infirmary, but, on the contrary, a sense of well being developing into excitement in the afternoon. No rose spots appeared nor abnormal urinary constituents. The disease cleared by lysis in about four weeks.

I am inclined to believe that this relationship between the paratyphoid fever and the edema is more than merely accidental. An identical attack of fever ushered in by swelling of the face was said to have occurred just previously in the same household. It is also recognized that typhoid fever, which in so many other respects is like paratyphoid, has the faculty, like glomerulonephritis, of increasing the permeability of blood vessels. It is possible that this episode explains those mysterious epidemics of edema of the face with typhoid symptoms and negative Widal reaction, like that reported by Elgood.[1] Aside from the clinical value of this discovery its epidemiological importance is obvious. McAleny blames the water supply for this outbreak, as the colon bacillus count was excessive.

CASE 2.—A girl, aged 13, referred to me, March 6, 1923, by the late Dr. Addison S. Thayer, appeared not unlike the first patient. The swelling was symmetrical, was very evident in the lids and bridge of the nose, and was without redness, tenderness or other sign of inflammation. There was no pitting on pressure. It had been greater, but was said to be subsiding. I found the tear passages patent to collyria, in spite of a slight swelling of the nasal mucosa. Some crusting showed at the vestibule of the nose. There was no chemosis or disturbance of the orbital structures. A Wassermann test and examination of the urine had been reported negative.

Recurrent attacks of this sort had extended over a period of seven or eight years, beginning in Italy during the World War, with so-called blood poisoning. The attacks had varied greatly in severity. They were sometimes accompanied by high fever and prostration, with the skin red and broken out with vesicles, and were more frequent in cold weather. During the recent intervals, the swelling never wholly subsided.

A laboratory examination, Sept. 16, 1921, by Dr. Mortimer Warren, to whom I am indebted for all the immunologic investigations in this case, revealed: hemoglobin, 70 per cent.; erythrocytes, 4,750,000; leukocytes, 12,000; the red corpuscles were a trifle pale; there were no parasites; polymorphonuclears, 63.6 per cent.; lymphocytes, 20.3 per cent.; transitionals, 15 per cent.; eosinophils, 1 per cent. Urine examination revealed a trace of albumin; no sugar, acetone or indican, and few hyaline casts.

The general examination at that time had shown an erysipelatous patch on the left cheek, and some exudate in the nasopharynx. The tonsils had been removed six weeks previously. The chest was clear. The glands, liver and spleen were not felt. The night temperature was 101.5 F.

The following year the patient went to the consultation clinic at the Massachusetts General Hospital. There the father understood that the diagnosis lay between mucocele of the sphenoid, angioneurotic edema, and lacrimal disease. Rhinologic examination, he understood, was negative. Roentgenograms of the sinuses revealed the right frontal sinus undeveloped; the frontals, ethmoids, and antrums clear.

It was two years later that I saw her. For four months the appearance remained as in the illustrations. There was at first some crusting around the vestibule of each nostril and along the lower portion of the septum on the left side, but not more than is ordinarily seen in this climate in perfectly normal persons. Under 1 per cent. mercurochrome ointment, crusts permanently disappeared from the right nostril and occasionally also from the left. In the meantime, the patient's metabolism was estimated by Dr. Warren at

* Read before the Section on Ophthalmology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

1. Elgood: Edema of the Eyelids with Pyrexia, Brit. M. J. 1:88, 1909.

—9, which is within the normal limit. We put her on thyroid, but produced no appreciable change in the swelling. This had previously been done by Dr. Thayer also without effect.

From January 12 to 23, she failed to come in for observations, and as it seemed unsafe to let her continue thyroid indefinitely, I made a call at her house and found her in bed with one of the acute erysipelatoid attacks. According to her story, she had been perfectly normal until Jan. 21, 1924, when a blizzard had suddenly developed. In spite of her protests, her teacher insisted that she go out with the other children at recess, with the result that the following morning she was in bed, with a temperature of 104. Two days later when I saw her, the temperature had dropped to 101. The right eye was closed by enormous swelling of both lids, and the left nasal passage was almost occluded by swelling of the middle turbinate, along the free border of which appeared a line of milky white pus. It will be noted that this was the naris opposite the affected lid. The right one, corresponding to the swollen lid, was absolutely free from swelling or crusting or other sign of inflammation. The left lids overlying the diseased side of the nose were correspondingly unaltered, except for one spot of discoloration, resembling a black and blue spot, about 5 mm. in diameter, at the middle of the lower margin of the orbit. The swelling on the right side was said to be subsiding and extending down toward the neck. I made a culture of the pus in the affected nostril, for making a vaccine. As with two previous cultures from the crusts in the same nostril, this yielded an unmixed growth of *Staphylococcus aureus*.

In this case, the roentgen-ray finding is strong evidence against sphenoidal or other bone disease. Orbital and conjunctival infections producing such marked swelling would cause chemosis. Absence of it and of eosinophilia was remarked in this case by Dr. George Derby in considering trichinosis. Blood parasites were not found.

The repeated inflammatory attacks would not occur in passive congestion. There is no localized point of sepsis in the skin, lids or ducts.

Arsphenamin had never been used, and there was no other reason to suspect arsenic or any of the unusual poisons, such as uranium, that produce edema. No acute infection accompanied by edema would last seven years.

EDEMA FUGAX

Several varieties of similar variable swellings in the lids and face characterized by sudden occurrence and remission without definite periodicity have been loosely classified as edema fugax. Authorities, in describing it, are evidently discussing a manifestation of several distinct disorders. Fuchs,[2] for instance, confines his comment to a transitory puffiness, premonitory of the "passive" edema of nephritis, hydremia and heart disease, whereas, de Schweinitz[3] mentions only that group of cases which have heretofore been supposed to arise from disturbances of vasomotor innervation like migraine, angioneurotic edema and urticaria. Without, at this point, going into the reasons for doubting the complicity of the neurovascular system in some of the latter cases, the tendency to regard the skin disturbances as manifestations of allergy may be referred to, on account of the relation to that familiar puffiness of the lids that was one of the first recognized reactions to foreign protein. It often accompanies urticaria, especially in cases of serum sickness, but lacks the itching and redness.

It is sufficiently common and important to deserve recognition in our textbooks. Two brief examples will suffice to define the disturbance that I have in mind: A Worcester woman not accustomed to shellfish consulted me last summer for a disconcerting puffiness of the eyes. On inquiry, I found that each attack followed the eating of shore dinners. I have seen for years a child barely saved at the age of 1 year from a protein poisoning by her first egg, who still shows slight puffiness of the lids after eating not only eggs but also rye or corn meal. It is likely that many of the so-called essential or spontaneous edemas are in reality due to this cause. While there is occasionally a lingering puffiness in the edema of protein sensitization, nevertheless, it is not of the extreme and permanent type seen in the case under discussion.

The distinctly local subjective and objective symptoms, on the contrary, such as the intense circumscribed inflammation, and the systemic reaction proportioned to and apparently dependent on the degree of local disturbance, both point to a diffuse infection of the skin and subcutaneous tissue that does not clear up between exacerbations.

SOLID EDEMA OF THE EYELIDS

This coincidence of persistent edema of the face with recurrent erysipelas has been reported at intervals for half a century. That it is so seldom noticed may be due to a confusion of names and descriptions quite as much as to its rarity. The name recently in favor, solid edema of the eyelids, was used by Sir Jonathan Hutchinson[4] in 1893; but, under this title, textbooks present contradictory and perplexing accounts. It is frequently characterized solely as a dusky, red-brown swelling, pitting on pressure, and not accompanied by disturbances elsewhere.[5] Yet there is equally good authority for the contrary description of a pale swelling, not pitting on pressure, and associated with eruptions, especially on the extremities.[2] These apparent contradictions become less puzzling after finding occasional reports in which the same case is said during its course to have developed both these forms more or less completely, as in my case.

A dozen other names have been given, often indicating varying ideas regarding the pathogenesis. The first studies concerned the relation of the acute to the chronic process. Many dermatologists identify with it the erythema perstans faciei described by Kaposi[6] in 1876, and some follow him in classing it as a manifestation of lupus erythematosus. The inference here is that the chronic swelling is primary, and the erysipelas incidental thereto.

Notwithstanding the fact that accompanying lupoid eruptions of other parts have often been noted, many observers prefer the other interpretation suggested by Hutchinson.[7] He remarked that elephantiasis of dependent parts is likewise often subject to acute inflammation, thus bearing a striking resemblance to this disease, and pointed out the likelihood that in both instances the acute disturbance is the cause of the chronic, and not merely a complication.

PATHOLOGY

Next, the relation to nasopharyngeal infection, which has since come to be regarded by many as basic, was brought out by Lavraud[8] as early as 1889. He had under treatment a child with this chronic edema of the face, complicated by attacks of erysipelas three or four

2. Fuchs: Textbook of Ophthalmology, Trans. 5, p. 662.
3. De Schweinitz, G. E.: Diseases of the Eye, Ed. 9, p. 169.
4. Hutchinson, Jonathan: Arch. Surg. **4**: 278, 1893.
5. Ball: Modern Ophthalmology, Ed. 2, 1908, p. 169.
6. Kaposi, Moriz, in von Hebra and Kaposi: Lehrbuch der Hautkrankheiten **3**: 307, 1876.
7. Hutchinson, Jonathan: M. Times & Gaz. **1**: 4 (Jan. 6) 1883.
8. Lavraud: Sem. méd. **9**: 167, 1889.

times a month. Finding the nose occluded by hypertrophy in the fossae, and the vault filled with adenoid overgrowth, he suspected that the crises started therefrom. He therefore irrigated the nasopharynx with a chlorate solution, with the result that there was but one attack in the succeeding three months.

Then Sabouraud,[9] in 1892, investigated the infectious agent in this type of swelling, which was known to him as elephantiasis nostras. By scarification during the acute crises, he obtained pure culture of streptococci. He regarded the process on the face as identical with that occurring simultaneously on the extremities, and it is not clear that his cultures were not solely from the legs. The resemblance to filariasis led him to still another conception of the mechanics of the disease. He attributed the swelling both to an accumulation of bacteria and their products, which impeded the outflow of lymph, and to some organization into adult connective tissue.

Romboletti,[10] in 1897, interpreted his microscopic findings and those of Polignani,[11] which together comprise our pathologic knowledge of this disease, as confirming Sabouraud's theory. He made a histologic examination of the swelling, which recurred after excision of the original process in the lids. The subcutaneous connective tissue was poor in cells, and the fibrils were compressed by clear, edematous fluid in the interstices. He found indications of organization in scattered knots of hyperplastic fixed tissue elements rich in blood vessels surrounded by white cells, associated with dividing pigment cells and the presence of mast cells. He was satisfied that this meager tissue residue obstructed the lymphatics and caused the swelling. As will be seen later, this is not conclusive.

Nothing satisfactory in the way of treatment had up to this time resulted from these studies, but the interest in opsonins was to lead to a brilliant demonstration in this disease. In 1908, Weaver and Tunnicliff,[12] during an acute recurrence of erysipelas in a child with longstanding swelling of the lids and face, recovered a pure culture of streptococci from the nasal discharge. By means of a vaccine, derived from an accompanying otitis, complete recovery took place in nine months. The next year, with quite different treatment, Adam[13] reported equally favorable results. He cleaned up the septic foci in the nose, using ordinary operative and antiseptic measures. He admits giving a vaccine to one patient, but not till there was satisfactory improvement with local treatment. He makes the important point that symmetry of the swelling, on which Hutchinson insisted, is not an essential characteristic. This fact is demonstrated by a case of Burnside Foster's,[14] and is also borne out in Weidler's recent series. This includes the report of three cases[15] in 1918, and another[16] in 1922. These cases were typical in swelling, recurring crises and nasal involvement, but in none of them was the streptococcus recovered. Other organisms were found, usually staphylococci. The importance of this observation is obvious. Weidler attributes the edema to toxins elaborated by bacteria in the nose and absorbed by the lymphatics of the skin.

While the conditions described in these reports differ in important respects, most of them having occurred at some stage or another of enough cases to justify the belief that they are different aspects of the same disease. The disease regularly begins with an acute attack, usually grave, but indistinguishable from ordinary erysipelas or cellulitis. The residual swelling may not be noticed until after several acute recurrences. These recurrences differ in severity, and may fit either of the descriptions previously quoted. They may also develop several other variants. Superficial eruptions on other parts of the body are often present, but not necessarily so. The same appears to be true of elephantiasis in the dependent parts. The entire pharynx, including the larynx,[13] may be involved. Where reports are found conflicting with the regular sequence, it seems likely that some stages are not reported, owing to lack of complete information regarding the case.

CAUSATION

The anomalous edema is hard to explain wholly according to either of the hypotheses mentioned. Obstruction of the lymphatics by virtual thrombi of bacteria or pressure from organized tissue would not be expected to develop and vanish so rapidly and completely. Furthermore, if bacteria are present to any such extent as this theory would require, some evidence of them should have appeared either on incubation or inoculation of the serum withdrawn by Polignani. Yet it is not fair to imply that these factors can be completely ruled out. Nor is it proved that none of the swelling is organized. Romboletti quotes Virchow's teaching that lymphatic edema leads to new connective tissue formation through activity of the white blood corpuscles. Many leukocytes were present about the blood vessels which Romboletti considered as hyperplastic. In a limited way, this notion accords with Carrel's[17] recent observations on the function of leukocytes, in promoting cell proliferation in the presence of inflammation. It must be conceded also that accounts of complete recovery do not necessarily exclude the trifling amount of hyperplasia that was reported in these investigations, as there can be no absolute standard for a face that has been so deformed for years, and a slight swelling could very likely persist without detection. Nevertheless, the present pathologic evidence indicates that the bulk of the swelling does not represent new tissue formation but is produced by fluid in the interstices of the subdermal connective tissue, as in any typical subcutaneous edema.

As just stated, recent writers lean to the other notion, that the disease is always of nasal origin. If this again were invariably true, it seems strange that nasal complications have not been reported oftener. While the silence of some early investigators might be attributed to overlooking the nasal disturbance, it is hard to believe that this is always the case. An allusion by Chatelain[18] indicates that as early as 1896 this sequence had become recognized. Romboletti, likewise, was familiar with Lavraud's theory that the infection is harbored in the nose, and quoted it verbatim. In his own case he nevertheless does not mention anything suggestive about the nose.

Yet it must be granted that, even in cases in which nasal complications are unquestionably a factor, there may be times when they are absent, or at least not evident. It will be recalled that my patient, whose nose certainly shared in the process, was once given a completely negative rhinologic report, and showed little of

9. Sabouraud: Ann. d. dermat. et de Syph. **3**: 592, 1892.
10. Romboletti: Arch. f. Augenh. **36**: 301, 1897.
11. Polignani: Rac. d. Lavor. d. a. Oc. **8** (abstr. Romboletti).
12. Weaver and Tunnicliff: J. Infect. Dis. **5**: 599 (Dec. 18) 1908.
13. Adam: Brit. M. J. **2**: 933 (Oct. 2) 1909.
14. Foster, Burnside: J. Cutan. Dis. **27**: 672, 1909.
15. Weidler: Tr. Am. Ophth. Soc., 1918, p. 48.
16. Weidler: Arch. Ophth. **51**: 178, 1922.
17. Carrel, Alexis: Leukocytic Trephones, J. A. M. A. **82**: 255 (Jan. 26) 1924.
18. Chatelain: Maladies de la peau, Ed. 12, 1896, p. 132.

significance in the nose, even immediately preceding an acute crisis.

Although respiratory diseases are more prevalent in cold weather, the susceptibility of these patients to cold, mentioned fifty years ago by Hutchinson, and repeatedly seen in my case, cannot be taken as evidence of nasal origin, since erysipelas, regardless of location, is more frequent in winter. Laache [19] recently charted more than 14,000 cases that had occurred in Bergen and Christiania since 1860, and found that the majority occurred in the winter.

The evidence furnished by the acute attack that my patient suffered in January of this year is particularly difficult to harmonize with this hypothesis. If the swelling had been due to absorption of toxins from the nose by the lymphatics of the skin, and if the crises originated from foci in the nose, why did the violent inflammation of the lids occur on the apparently normal side of the nose, and, conversely, how could the tissues be almost unaffected that overlay the other side of the nose, occluded by engorgement and purulent exudate? The recovery of Adam's patient after local treatment of the nose is strong testimony that in that case, infection hibernating there was the source of the skin disease; but it proves nothing regarding the other cases. The same may be said of Lavraud's case, in which the results, however, were less positive. Improvement following the administration of vaccines derived from the nose does not demonstrate that the infection originates there, any more than that it originated in the ear from which Weaver and Tunnicliff took their culture. While the nose is a favorable place for harboring many sorts of infection, this does not rule out the possibility that, in some cases at least, there may be other foci.

Not only can the severity of the process be disproportionate to the nasal disease, but many patients with violent and obstinate rhinologic infection show no tendency to edema of the face. That this type of disease is possible, independent of infection about the mucous orifices, is shown by its occurrence on the extremities. It may turn out that the infection can be harbored by various parts of the body.

Since all the complications mentioned, namely, nasal infection by ordinary cocci, edema of the lids, and erysipelas, are universally prevalent, it seems as though some other predisposing factor was necessary to produce this peculiar disease. Various conjectures have been made, especially with regard to tuberculosis. Since various cocci are found interchangeably, it is not likely to be due to a specific strain of micro-organism. A special susceptibility to general infection has been inferred by some writers, but there is no definite indication of it, unless the multiple elephantiasis reported by Hutchinson, Sabouraud and Romboletti can be so construed. Nor does anything more conclusive appear in regard to the elusive relationship with tuberculosis. This was first suggested by the eruptions on the extremities. The lesions of lupus erythematosus, with which many dermatologists classify it, are of two sorts. One is believed to be a tuberculid and the other a toxic exanthem, also often tuberculous.[20] In solid edema, such complications in the neck, trunk and particularly the hands have been described by Kaposi, MacKenzie,[21] Pollitzer [22] and others. Eyre,[23] furthermore, mentions a case followed by tuberculosis of the conjunctiva. There was also occasion in one case of Weidler's to use tuberculin for phlyctenular conjunctivitis, and Weaver and Tunnicliff made the significant observation that an old, and ordinarily dry, tuberculous sinus in the hip would discharge profusely during every attack of erysipelas of the face.

Yet, after careful consideration, no definite association between solid edema and tuberculosis is demonstrated by these reports. It is more likely, as Sabouraud intimates, that the coincidence merely indicates that both diseases readily attack physically defective persons in unwholesome surroundings. Possibly the lupoid skin lesions are of no greater significance, and can be explained as exanthems induced by the toxins of the cellulitis.

For the reasons just outlined, the behavior of this disease does not warrant the conclusion that it is usually due to lymphatic obstruction, or invariably to nasal infection. No definite relationship to the tubercle bacillus or to any other specific organism has been demonstrated. A somewhat different inference as to etiology is suggested by the diminishing severity of the seizures. Although no consistent gain is maintained, it has been noted that the gradual tendency of many cases has been toward moderation. Hutchinson remarked that the first of the attacks is the most severe, and anticipated that they would subside and possibly disappear as the patient grew older. Complete realization of this expectation is not the common experience. Yet the father of my patient feels that she is outgrowing the disease, so much milder have been the recent seizures. Such observations as these suggest a not entirely successful attempt of the system to overcome a lack of specific immunity to the organism causing the acute infection. It seems, therefore, as though this extraordinary disorder may indicate in rare individuals an abnormal weakness of the defense mechanism against some one of the common skin cocci so profound that the tissues are unable to rid themselves of the infection. There is nothing in the recorded behavior toward vaccines or the opsonic variations observed by Weaver and Tunnicliff inconsistent with this supposition. An immunity so insecure as to be broken down by the most commonplace exposure, such as chilling, also accords with it. The permanent swelling may then be largely an ordinary defense reaction, unusually prolonged, in response to the latent focus. It is by no means requisite to assume that this focus is invariably located in one particular place.

This supposition regarding the etiology is, of course, only speculative. It seems reasonably certain, however, that pathologically we are dealing with a true edema of the subcutaneous tissue.

DIAGNOSIS

This disease is distinguished as a chronic edema in which acute inflammatory seizures alternate with quiescent periods often totally devoid of any signs of inflammation. We are apparently not justified in regarding the presence or absence of pitting on pressure, variations in color, or concomitant eruptions on other parts, as characteristic.

Theoretically considered, treatment should be directed toward strengthening immunity. While, in those cases with nasal foci, local treatment might effect a temporary cure, it offers no assurance against reinfection. Immunologic measures are therefore more logical, as they are applicable to all cases, regardless of location, and might be expected to produce the most permanent recoveries.

19. Laache, S.: Norsc Mag. f. Lægevidensk. **84**: 965 (Nov.) 1923; abstr. J. A. M. A. **82**: 430 (Feb. 2) 1924.
20. Fox, in Allbutt and Rolleston: System of Medicine **9**: 10.
21. MacKenzie: Brit. J. Dermat. **8**: 138, 1896.
22. Pollitzer: J. Cutan. Dis. **27**: 176, 1907.
23. Eyre, in discussion on Critchett: Tr. Ophth. Soc. U. K. **19**: 7, 1899.

This conclusion is supported by the practical results reported up to the present time.

In view of the difficulty of diagnosis in many maladies in which edema of the lids is the leading indication, the subject deserves more detailed consideration than is usually accorded. In the fine print of Fuchs' textbook is a classification of many of the commoner types that has been so useful in differential diagnosis that I have from time to time ventured to make additions and rearrangements. It is in immunologic aspects that the usual groupings most require revision; yet, so chaotic is our present knowledge of the entire subject of edema, that it is unprofitable to approach it except from a purely clinical standpoint.

Fuchs first distinguishes those cases in which, on separation of the lids, the deeper structures appear normal. I have modified this heading to accord with the common observation that, in the severe instances of this class, the dropsy tends also to spill over into the conjunctiva. This is observed not only during inflammations like dacryocystitis, but also in noninflammatory conditions causing albuminuria.

He then subdivides into inflammatory and noninflammatory groups. On this basis, the accompanying tabulation develops.

Classification

I. Usually involving structures posterior to lids
  A. Inflammatory
    1. Conjunctiva
      Acute blennorrhea
      Diphtheria
      Violent catarrh
    2. Interior of globe
      Iridocyclitis
      Acute glaucoma
      Panophthalmitis
    3. Intra-orbital
      Tenonitis
      Orbital cellulitis
      Cavernous sinus thrombosis
    4. Trichinosis
  B. Noninflammatory
    1. Tumor
    2. (Exophthalmic goiter)

II. Confined to lids and rarely conjunctiva
  A. Inflammatory
    1. Local
      Hordeolum
      Acute chalazion
      Dacryocystitis
      Furuncle
        Malignant pustule
      Orbital periostitis
      Lid abscess
      Erysipelas
        Solid edema
      Eczema
      Trauma
        Insect bites
        Brown tail moth
      Accessory sinus disease
      Dental infection
    2. Toxic
      Paratyphoid (typhoid)
      Measles
      Malaria
      Syphilis
      Gouty crises
      Inorganic poisons
        Arsenic
        Iodin
    3. Hypersusceptibility.
      Indicanuria
      Food protein
      Bacterial
        Accessory sinus
        Chronic wound infection
        Appendix
      Reflex
        Establishment of catamenia
        Migraine
        Eruption of teeth
  B. Noninflammatory
    1. Hydremia
      Nephritis
      Cardiac
      Liver
    2. Filariasis
    3. Myxedema.

Inconsistencies in such a purely clinical arrangement, though obvious, are unavoidable. The propriety, for instance, of grouping together the causes of ordinary dropsy becomes more dubious with every addition to our knowledge of its biochemistry. Even in the effusions habitually conceived of as the simple result of venous obstruction, Boycott [24] cites evidence to show that the edema does not follow venous obstruction, per se, and does not develop until after the tissues have been injured by imperfect nutrition. Parenthetically, his suggestion that the somewhat similar edema of lymphatic obstruction may likewise result from impaired nutrition rather than any direct purely mechanical effect is interesting in its bearing on the production of solid edema. It is still harder to give a simple interpretation to the renal dropsy of glomerulonephritis. As often pointed out, this is not to be explained by an inability of the kidneys to excrete, since complete lack of kidney function from various causes can lead to death without inducing edema.[25] Possibly it is toxic. One theory regards an altered affinity in the tissues for water and sodium chlorid as the immediate cause of such edemas. Hence there is no ground for assuming that a common cause, largely mechanical, is responsible for the edemas leading to general anasarca. On account of their clinical similarity, grouping them together, nevertheless, facilitates identification.

The edema of acute glaucoma conversely, is placed with the inflammations on account of its superficial resemblance to iritis, the part that passive venous and lymphatic obstruction may play in its production being entirely disregarded. So classifying also the edema and exophthalmos in trichinosis is not likely to be questioned, as it is usually laid directly to organisms invading the eye muscles, where they have been frequently found in animals. The other possibilities considered are passive obstruction and the supposition of Friederich,[26] who, on the contrary, deems the lid swelling a collateral manifestation of systemic infection.

Typhoid fever is entered in parentheses because I cannot authenticate one instance in which the patient was said to have swelling about the eyes. Both typhoid and glomerulonephritis cause increased permeability of blood vessels.[27] If this action is chiefly responsible for effusions occurring in these diseases, any other disorders possessing this property, such as scarlet fever and carbon monoxid poisoning, purpura and endocarditis, should be remembered as possible causes of lid edema. In scarlet fever it is not uncommon to find edema, but even when other signs of nephritis [28] are absent, the presence of kidney complications has nevertheless been inferred heretofore. In view, however, of the increase in permeability just men-

24. Boycott, in Pembrey and Ritchie: General Pathology, 1915.
25. Loeb, Leo: Edema, Medicine **2**: 171 (Aug.) 1923.
26. Friederich, cited by Ward: American Encyclopedia of Ophthalmology, p. 9322.
27. Loeb, Leo: Edema, Medicine **2**: 179-182 (Aug.) 1923.
28. Osler: Practice of Medicine, 1902, p. 80.

tioned as characteristic of scarlet fever, it is not impossible that the toxin and not a nephritis is directly responsible.

A third entirely different mode of production is suggested by Bristol's [29] theory that scarlet fever represents an allergy in subjects sensitive to streptococci. Any accompanying edema might then be interpreted as a product of the allergy rather than as a simple intoxication due either to the scarlet fever or to a hidden nephritis. This possibility is worth considering in regard to other eruptive fevers. It even offers an interesting speculation about the effusions in purpura and endocarditis, in which an obscure connection has been felt to exist with the arthritides and so-called angioneurotic edema.

Edema of this sudden, transient type is more or less characteristic of anaphylaxis. As stated in discussing edema fugax, it was originally regarded as a vasomotor neurosis, but "H. Quinke himself has abandoned this interpretation, and holds changes in the tissues that lead to increased attraction for water primarily responsible." [27] In the cases mentioned in connection with susceptibility to food proteins, the conjunctiva can be involved as well as the lids. Rotch [30] reported corrugation of the conjunctiva in a case of angioneurotic edema of the lids following ingestion of egg.

With the discovery of new sources for absorption of foreign protein, the proportion of urticarias and angioneurotic edemas to be accounted for as akin to anaphylaxis has increased, with a corresponding diminution of those to be explained as neuroses. Not only are more reactions to food constituents being recognized, but also more sources for absorption of bacteria and their products. Barber,[31] in discussing recurrent urticaria and so-called angioneurotic edema in their relation to foreign protein, maintains that in adult life the cause of the sensitization is apt to be of bacterial origin rather than from food protein. He appears skeptical of the facility of what he calls the American school in obtaining positive cutaneous reactions toward food proteins. While it is likely that more painstaking search in England will reveal equally widespread susceptibility to food proteins, this account demonstrates the importance of bacterial sensitization. He reports in detail examples of chronic infections as provoking these skin manifestations. The infections were of the sort usually called focal, and occurred in tonsils, accessory sinuses and infected wounds. He mentions recurrent swelling of the lids, among other disturbances, as ceasing after tonsillectomy, and he recalls a similar case of Oberndorff's [32] in which the patient recovered after appendectomy. His account is especially significant in adding further evidence that the same exciting agent can induce interchangeably urticaria or angioneurotic edema.

This is important because the manifestation of nasal sinus infection described in the textbooks is that swelling of the skin overlying the infected area, which is a cardinal symptom of local inflammation. Beard is quoted by Foster [33] to the effect that such edema may be the first symptom of dental disorder, before any trouble is noticed with the teeth. In accessory sinus disease he characterizes the edema as involving the inner third of the lid. By extension to the orbit it can also produce the symptoms of orbital cellulitis.

While these attacks of evanescent swelling make a well defined clinical group, the actual relationship between them is not so clear. Those just described that have a recognized protein excitant may be accepted as anaphylactic in type. As has been said, with accumulation of evidence, more cases are being added to this group. Yet there are still some for which no obvious protein agency can be demonstrated, as for instance during migraine and at the establishment of catamenia. Rotch [34] also, in 1903, reported angioneurotic edema in the lids and face of a susceptible subject coincident with the eruption of the canine teeth. Still it is not out of the question to suspect processes proteolytic in character, and therefore akin to anaphylaxis, of being also at the bottom of some of these seizures. It is especially easy to imagine such a connection in the edema associated with migraine. Both these phenomena have been observed in indicanuria, usually believed to indicate intestinal putrefaction. Now, one of the products of incomplete protein hydrolysis regarded as important in so-called intestinal "autointoxication" is histamin.[35] This amin is capable of exciting many of the phenomena of allergy and, when applied locally, can induce urticaria. It is quite as possible, therefore, that migraine and edema occur together through the influence of some common excitant comparable to histamin, as it is that the edema is a vasomotor manifestation of the migraine. At present, however, it is clearer to make two classes of these phenomena—hypersusceptibility and reflex disturbances.

To call the swelling of insect bites traumatic, in any such sense as that accompanying a black eye, appears to be a Gallicism. It will be recalled that one of the arguments for Fisher's theory of the causation of edema is that the swelling in ant-bite is due to formic acid injection. It seems uncertain, nevertheless, whether bites and wheals following the injection of some drugs are to be regarded as toxic or as akin to allergy, and it is probable that they will be readily found in the traumatic group.

The action of the internal secretions is far from clear. Thyroid substance is known to lead to the discharge of edematous fluid in some nephritic and other conditions [36] as well as in myxedema. Yet Thompson [37] supports the somewhat conflicting theory that the exophthalmos of hyperthyroidism and the edema of the lids and conjunctivae usually attributed thereto are in reality caused by a primary orbital edema resembling solid edema of the lids. His hypothesis, it is true assumes that the swelling follows a circulatory disturbance rather than a direct reaction of the tissues to the hormone. As yet we are certain of little except that edema of the lids can occur in both hyperthyroidism and hypothyroidism.

The omission of edema fugax and essential edema is intentional. As previously stated, it is likely that edema fugax is usually an unidentified instance of the edemas of hypersusceptibility. The other cases will probably turn out to be the premonitory attacks, described by Fuchs, of those diseases causing general anasarca. Fox [38] recalls the fact that this edema is characterized by being present on arising, and clearing during the day. As blepharochalasis is explained on good authority as a result rather than a cause of angioneurotic edema, it is not included in the table.

29. Bristol, L. D.: Am. J. M. Sc. **166**: 853 (Dec.) 1923.
30. Rotch: Pediatrics, Ed. 4, p. 943.
31. Barber, H. W.: Brit. J. Dermat. **35**: 416 (June) 1923.
32. Oberndorff, C. P.: Disappearance of Angioneurotic Edema After Appendectomy, J. A. M. A. **59**: 623 (Aug. 24) 1912.
33. Foster, M. L.: Diagnosis from Ocular Symptoms, p. 27.
34. Rotch: Pediatrics, Ed. 4, p. 379.
35. Wells: Chemical Pathology, p. 196.
36. Loeb, Leo: Edema, Medicine **2**: 179 (Aug.) 1923.
37. Thompson: Am. J. Ophth. **7**, No. 1, January, 1924.
38. Fox, L. W.: Ophthalmology, 1920, p. 52.

CONCLUSION

In spite of its limitations, such a table has proved most useful in facilitating diagnosis of some obscure disturbances, and it is presented hopefully. Opinion regarding the whole subject of edema and the interlocking field of immunity is in a state of flux, with new observations pouring in daily. This is not to be interpreted, therefore, as a definite classification, but rather as a basis for further modification. It is intended to include only those causes of edema which have been observed to affect the lids; but so easily swollen are these structures, owing, it is stated, to their lax tissues, that effusions of most diverse origin have been observed there. They often occur in the lids before appearing elsewhere, and it is common observation that occasionally this swelling is the sole evidence of disorders more or less grave. Not only for this reason, but also for the light that may be thrown on the fundamental yet complex and baffling subject of edema in general, these cases should be taken more seriously and reported more frequently, especially when the origin is obscure. Many of the most significant observations in these fields have been reported by ophthalmologists, and our opportunities are peculiarly extensive

704 Congress Street.

A CARNIVOROUS DIET IN THE TREATMENT OF FLAGELLATE DIARRHEA *

ROBERT W. HEGNER, PH.D.
BALTIMORE

My object in this communication is to call the attention of physicians to a method of treatment that has great promise for the control of intestinal disturbances due to the presence of protozoa. Considerable evidence has been obtained from a study of lower animals that a carnivorous diet is unfavorable for the existence within the intestine of flagellates belonging to the genera *Giardia* (*Lamblia*) and *Trichomonas*.[1] The effects of such a diet on these and other intestinal protozoa in man can best be determined by physicians who have control of patients suffering from flagellate diarrhea or amebic dysentery. In the following paragraphs are presented briefly (1) the results of observations and experiments on animals, and (2) the results of treating human patients with a carnivorous diet.

Three rats that had been fed on a well balanced carnivorous diet throughout their lives (174 days) were found to be free from giardias and trichomonads, whereas other rats from the same colony that were fed largely on a carbohydrate diet were abundantly infected with these protozoa.

Of fifteen rats that were fed on a carnivorous diet for one week, 7 per cent. lost their giardias, 7 per cent. lost their trichomonads, the remaining 93 per cent. lost on the average 90 per cent. of their giardias, and 98.2 per cent. of their trichomonads.

A survey of the literature on protozoology reveals the fact that intestinal protozoa have been reported from carnivorous mammals vary rarely; that they are not so rare in omniverous mammals; but are often present in herbivorous mammals in great abundance, both as regards numbers of species and numbers of individuals.

Original examinations of fecal specimens from twelve carnivorous mammals belonging to ten different species were negative except in one case—giardia cysts in a wild cat; this animal, however, was fed on an omnivorous diet.

Attempts that I made to infect kittens with giardias from man and rat failed, and in only one case were specimens of the trichomonads from rats recovered from cats to which they had been fed.

These observations and experiments on mammals suggest that a carnivorous diet might be of use in ridding man of intestinal protozoa. At least five species of amebas have been recognized as inhabitants of the human intestine, five species of flagellates, and one ciliate. These are *Endameba histolytica, E. coli, Endolimax nana, Iodameba williamsi* and *Dientameba fragilis; Chilomastix mesnili, Trichomonas hominis, Embadomonas intestinalis, Enteromonas hominis* and *Giardia lamblia;* and *Balantidium coli.* The pathogenicity of *Endameba histolytica* and *Balantidium coli* is well established, but considerable doubt exists in the minds of various investigators regarding the other species mentioned. When a patient has an intestinal disturbance, and flagellates in large numbers are found in the feces, it is customary to attribute the condition to their presence. It has not been definitely proved, however, that the disturbance is not due to some other factor, and that the flagellates are present in large numbers because the condition within the intestine is favorable for their growth and multiplication. Attempts to cure "flagellate diarrhea" by administering a carnivorous diet may also settle this question of pathogenicity, since if such a diet brings about a cessation of the diarrhea and also a disappearance of the flagellates, it would seem safe to assume that the flagellates were responsible for the diarrheal condition.

It is difficult for one who does not have control of patients over a considerable period to test the effects of a carnivorous diet on the intestinal protozoa of man. I hope that physicians who read this communication will try out this method of treatment and let me know the results so that a large enough body of data may be obtained to settle the problem one way or the other. For this purpose the accompanying menus were prepared by Drs. E. V. McCollum and Nina Simmonds.[2] It is suggested that these menus be followed for two weeks and then, if found disagreeable to the patient, that a normal diet be resumed for a week and the carnivorous regimen be then repeated.

Menus Composed Chiefly of Meat and Eggs for the Elimination of Intestinal Protozoa *

BREAKFASTS

1. One-half orange; bacon; eggs, soft boiled or poached; one-half slice of toast, butter; coffee with cream, but little or no sugar.
2. One-half grapefruit; country sausage; fried tomatoes; one slice of toast, butter; coffee with cream.
3. One-half orange; eggs, scrambled with chipped beef; one-half slice of toast, butter; coffee with cream.
4. Strawberries, no sugar; bacon; smoked sausages; one slice of toast, butter; coffee with cream.
5. One-half grapefruit; broiled ham; eggs; one slice of toast, butter; coffee with cream.
6. One-half orange; lamb chops; bacon with fried tomatoes; one slice of toast, butter; coffee with cream.
7. One-half grapefruit; ham and egg omelet; one-half slice of toast, butter; coffee with cream.

The only change to be made during the second week in the breakfasts is to substitute waffles or griddle cakes, but without syrup or with very little, in place of some of the eggs.

* From the Department of Medical Zoology, School of Hygiene and Public Health, Johns Hopkins University.

1. Hegner, R. W.: The Effects of Changes in Diet on the Incidence, Distribution and Numbers of Certain Intestinal Protozoa of Rats, Am. J. Hyg. 3: 180-200 (March) 1923; The Relations Between a Carnivorus Diet and Mammalian Infections with Intestinal Protozoa, Am. J. Hyg., to be published.

2. Recipes for the dishes contained in these menus will be found in the American Home Diet, by McCollum and Simmonds.

* One and five-tenths grams of precipitated chalk ($CaCO_3$) should be taken after each meal in half a glass of water.

LUNCHES

1. Vegetable soup, not too many vegetables in it; lamb chops; deviled egg salad, olives; educator cracker, butter; coffee or tea; date pudding with whipped cream, no sugar but a little vanilla in whipped cream.
2. Hamburger layer prepared with onions, green peppers and tomatoes; cucumber pickles; slice of bread, butter; sliced oranges with coconut.
3. Chicken soup; liver and bacon; broiled sweetbreads; educator cracker, butter; sweet mixed pickles; pineapple whip; coffee or tea.
4. Vegetable soup; veal cutlets cooked in casserole; slice of bread, butter; date pudding with whipped cream; coffee or tea.
5. Clam chowder; pork chops; deviled egg salad, olives; slice of bread, butter; pineapple whip; coffee or tea.
6. Broiled steak smothered with onions; fried tomatoes; two educator crackers, butter; coffee or tea; sliced oranges and coconut.
7. Vegetable soup; halibut steak with lemon; cold baked ham; pickles or catsup; slice of bread, butter; date pudding with whipped cream; coffee or tea.

Modification of lunches for the second week: Eat a little less of the meat dishes and make the following changes:

Lunch 1. Omit the deviled egg salad. Substitute a salad made of grapefruit and celery or grapefruit and pineapple.
Lunch 2. Add a lettuce salad with French, Russian or mayonnaise dressing.
Lunch 3. Leave out the liver and bacon and add a tomato salad.
Lunch 4. Add cole slaw to the menu and eat less of the cutlet dish.
Lunch 5. Omit the deviled egg salad. Have one made of grapefruit, orange and pineapple.
Lunch 6. Add a lettuce salad with one of the foregoing dressings.
Lunch 7. Leave out the halibut steak and substitute salmon salad.

DINNERS

1. Fricassee of chicken; baked ham, olives; slice of bread, butter; coffee or tea; jello, any flavor, with cream.
2. Roast lamb; juice from meat for gravy; currant jelly; slice of bread, butter; pineapple whip; coffee or tea.
3. Broiled steak with bacon; fried tomatoes; educator cracker, butter; coffee or tea; strawberries, no sugar.
4. Roast chicken or fried chicken; left over meats in a salad; bread, one slice, butter; olives; coffee or tea; sliced oranges and coconut.
5. Meat loaf with tomato sauce; cold tongue; educator cracker, butter; jello, any flavor, with cream; coffee or tea.
6. Roast veal; juice for gravy; Chili sauce or olives; slice of bread, butter; coffee or tea; pineapple whip.
7. Roast beef; juice for gravy; Worcestershire sauce; cucumber pickles; slice of bread, butter; coffee or tea; apricot fluff or strawberries.

Modifications of dinners for second week:

Dinner 1. Omit fricassee of chicken and substitute fresh asparagus on toast with butter.
Dinner 2. Tomato and cucumber salad added to the menu; baked apple stuffed with raisins for dessert in place of the pineapple whip.
Dinner 3. Add salad of chopped cabbage with pickle and nuts; lemon pie for dessert in place of strawberries.
Dinner 4. Leave out the meat salad and substitute a lettuce salad with one of the dressings.
Dinner 5. Meat loaf should be replaced by ham boiled with sprouts, either kale or brussels. Apple pie and cheese for dessert.
Dinner 6. Add tomato salad to the menu. Caramel custard for dessert.
Dinner 7. Creamed string beans or creamed asparagus could be added to the menu. Strawberry shortcake in place of the plain strawberries.

Data regarding the effects of a carnivorous diet on patients suffering from "flagellate diarrhea" are not extensive. Dr. T. B. Magath of the Mayo Clinic tried this treatment at my suggestion and writes:

We so seldom have patients with flagellate infection, who remain long enough with us to try out any particular form of treatment, that we have been able to try your feeding experiments in but a few instances. In these cases, however, there was a very rapid diminution of flagellates, which took place in a surprisingly short length of time.

My experience is limited to one case of trichomonas and two of giardia infection. The patient with trichomonas infection had suffered from diarrhea for years. The stools were watery and were swarming with trichomonads. Three days after beginning the meat diet, he began to pass formed stools in which no flagellates could be found, and he was feeling much better. Thirty-two days later, when this patient left Baltimore, he was feeling very well, was having no diarrhea, and the stools were still free from flagellates.

The giardia cases have not responded to the meat diet so quickly and definitely. One patient has been under observation for seven weeks, during which period thirteen stool examinations were made at intervals of about three days. By stirring up a certain quantity of fecal material in a measured quantity of physiologic sodium chlorid solution and placing a definite quantity of this mixture under an 18 mm. square cover glass, it was possible to get an approximate idea of the number of cysts present. The number of cysts was counted in ten fields, a No. 10 ocular and a 4 mm. objective being used, and the average number per field thus obtained. Before starting the meat diet, this patient was passing very loose stools containing an average of 6 cysts per field (March 14). The average of the first four examinations (March 19-March 28, 1924) was 1.6 per field; of the second four (March 31 to April 12), 0.4 per field, and of the third four (April 19 to April 30), 0.5 per field. The number of stools passed during this period decreased, and many of them were formed and the patient improved in health.

The second patient with giardiasis has furnished us with material for study for four years. Before beginning the meat diet (March 28) the feces contained an average of 2 cysts per field. The first four examinations after the meat diet was begun (March 31 to April 16) gave an average of 1.9 cysts per field. The second four examinations (April 21 to May 1) gave an average of 0.5 per field. During this period the stools have changed from a loose to a semiformed condition.

More data are necessary before a definite statement can be made regarding the efficacy of a carnivorous diet with regard to the various species of intestinal protozoa. The observations and experiments thus far indicate, however, that forms such as *Trichomonas* and *Chilomastix* that live in the lumen of the large intestine, where they are subjected immediately to changes in the intestinal contents, would be most quickly affected. Amebas might be disadvantageously affected as long as they remain in the lumen of the intestine; this is probably also true of *Balantidium coli*. *E. histolytica* and *B. coli* would probably be difficult to reach after they have entered the tissues. *Giardia* lives mostly in the duodenum, where it is not subjected to bacterial changes; it will probably be found to be more difficult to deal with. The evidence indicates that giardias are adversely affected by a carnivorous diet, but treatment will probably require a longer period.

History of Anesthesia.—The Hindus evidently knew of several narcotic drugs as early as 977, for in that year Pandit Ballala describes an operation performed on King Bhoja. The patient was suffering from severe pain in the head; and, his condition having become critical, two brother physicians, who happened to arrive at Dhar, after carefully considering the case came to the conclusion that a surgical operation was necessary to give relief. They are said to have administered to him a drug called sammohini to render him insensible, and while he was completely under its influence, they trepanned his skull and removed the cause of complaint. They closed the opening, stitched up the wound, and applied a healing balm. After the operation, they are said to have administered a drug called sanjivini to accelerate the return of consciousness, and to minimize the chances of death.—Webster, William: The Science and Art of Anesthesia, St. Louis, C. V. Mosby Company, 1924.

THE USE OF SULPHARSPHENAMIN IN VINCENT'S ANGINA AND STOMATITIS IN CHILDREN *

LOUIS H. BARENBERG, M.D.
NEW YORK
MAX W. BLOOMBERG, M.D.
MONTREAL

Since Vincent,[1] in 1896, first described the condition of the throat that bears his name, many remedies have been employed in its treatment. Originally, in France, local applications of tincture of iodin, of chromic acid, of glycerin formaldehyd and of methylene blue were used. Even in recent years, both abroad and in this country, local applications of various antiseptics have been employed. Buschmann [2] tried acriflavine. King [3] recommended a 10 per cent. solution of copper sulphate as a topical application, and hydrogen peroxid has been considered almost a local specific.

Since a spirillum, as well as the fusiform bacillus, was described as the causative agent, it was logical that arsphenamin should be used in the treatment of this disorder. Gerber [4] used it intravenously in 1911. In 1914, Achard and Flandin [5] reported good results with local application of arsphenamin. Ravaut [6] noted the favorable effect of local and systemic use of arsphenamin in gangrenous wounds in which "fusospirillar" organisms were found. Reckord and Baker,[7] in 1920, used arsphenamin in glycerin locally with good results in adults suffering from Vincent's angina. Graves [8] reported two cases yielding only to arsphenamin.

In 1905, Tunnicliff [9] established the etiology of cases of ulceromembranous gingivitis to the same as that of Vincent's angina, and Gilmer [10] shortly after reported that acute ulceromembranous gingivitis was the same infection as Vincent's angina. Spano [11] cured fourteen cases of ulcerative stomatitis of the Vincent type with three or four intravenous injections of neo-arsphenamin at two or three day intervals, effecting a cure in from six to ten days. Morgan [12] used intravenous injections of silver and neo-arsphenamin, combined sometimes with local applications of arsenic solution, in the treatment of ulcerative stomatitis in children, and reported rapid recoveries. Jelinek [13] reported remarkable cures of ulcerative stomatitis by freezing with ethyl chlorid, a method which, while bringing about rapid cures, is not applicable to children.

Our former method of treatment of Vincent's angina was local applications of neo-arsphenamin in glycerin, three times daily, following irrigation of the mouth with saline solution and swabbing with hydrogen peroxid. For stomatitis, we used irrigations with 2 per cent. solution of potassium chlorate, cleansing of the gums with hydrogen peroxid, and application of weak tincture of iodin to the gums, as well as potassium chlorate internally. Our results were fairly satisfactory, but the treatment was difficult, and required a great deal of the nurses' time; two nurses were necessary to hold a struggling child. From the standpoint of the children, the treatment was terrifying; and, in the course of the struggling, trauma of the mouth would ensue, thus prolonging rather than hastening the cure.

We had often considered using the arsphenamins intravenously, but in children this procedure is difficult. When sulpharsphenamin was devised and offered an opportunity for intramuscular therapy, we welcomed it and at once made a test of its efficacy. We have not found any reference to the treatment of Vincent's angina in children with the arsphenamins, and therefore thought it of interest to report our results in the treatment of this disorder as well as of ulceromembranous gingivitis.

Fifteen cases of Vincent's angina were treated, eight by intramuscular injections alone and seven by intramuscular injection combined with local application of sulpharsphenamin three times daily. The dose was 0.1 or 0.2 gm.; five received one injection of 0.1 gm., two

TABLE 1.—*Cases of Vincent's Angina Treated with Sulpharsphenamin*

Case	Age, Years	Weight, Pounds	Lesion: Location	Lesion: Extent	Cervical Adenitis	Stomatitis	Treatment: Duration, Days	Treatment: Intramuscular, Gm.	Treatment: Local, No. of Days	Comment
3	2	22	Tonsil and uvula	Marked	Moderate	None	4	0.1	...	
4	2	23	Tonsil	Marked	Marked	None	4	0.1	...	Marked peritonsillitis
5	2	22	Tonsil	Very marked	Marked	None	6	0.2	...	
6	3	29	Tonsils and uvula	Marked	None	None	10	0.2	...	Sloughing of part of uvula
7	2	29	Tonsils	Moderate	Slight	None	4	0.1	...	
8	3	28	Tonsil	Moderate	None	None	10	0.1	...	
9	4	30	Tonsil	Marked	Moderate	None	5	0.1	...	
10	3	24	Tonsils	Very marked	Marked	None	10	0.4*	...	Sloughing of most of tonsil
1	2	25	Tonsil	Marked	Moderate	None	2	0.1	8	Local treatment before injection; neo-arsphenamin was used
2	2	25	Tonsil	Marked	Marked	Mild	2	0.1	8	Local treatment before injection; neo-arsphenamin was used
11	3	31	Tonsil	Very marked	Marked	None	10	0.1	3	Sloughing of part of tonsil
12	3	30	Tonsil	Moderate	Moderate	None	4	0.1	3	
13	3	43	Tonsil	Moderate	Moderate	None	3	0.2*	...	
14	4	33	Tonsil	Moderate	Moderate	None	4	0.2*	3	
15	3	25	Tonsil	Very marked	Moderate	None	5	0.2*	3	Sloughing of most of tonsil; recurrence

* In these cases, 0.2 gm. was injected; in all others, 0.1 gm. was given.

* From the Home for Hebrew Infants.
* Read before the Bronx Pediatric Society, May 14, 1924.

1. Vincent, H.: Ann. de l'Instit. Pasteur **10**: 488-510, 1896.
2. Buschmann, H.: Deutsch. med. Wchnschr. **49**: 617 (May 11) 1923.
3. King, C. R.: Laryngoscope **31**: 950 (Dec.) 1921.
4. Gerber: Deutsch. med. Wchnschr., 1911, Nos. 30 and 46.
5. Achard and Flandin, cited by Pereira, A. M.: Paris thesis, L'angine de Vincent, 1920-1921.
6. Ravaut: Presse méd. **22**: 712, 1914.
7. Reckord, F. F. D., and Baker, M. C.: Vincent's Angina Infection, J. A. M. A. **75**: 1620 (Dec. 11) 1920.
8. Graves, Stuart: Kentucky M. J. **20**: 445 (July) 1922.
9. Tunnicliff, Ruth: J. Infect. Dis. **2**: 446, 1905.
10. Gilmer: Dental Rev. **20**: 450, 1906.
11. Spano, R.: Pediatria **30**: 241 (March 15) 1922.
12. Morgan, E. A.: Ulcerative Stomatitis and Its Treatment by Intravenous Injection of Arsenic, Am. J. Dis. Child. **25**: 354 (May) 1923.
13. Jelinek, V.: Wien. klin. Wchnschr. **36**: 398-408 (May 31) 1923.

children received two injections of 0.1 gm., and only one required two injections of 0.2 gm. Five had one intramuscular injection as well as local applications for three days. No patient required a second injection. Two patients, the first treated, had local applications of neo-arsphenamin for eight days, followed by one injection of sulpharsphenamin (0.1 gm.). The lesions healed within two days after this injection (Table 1, Cases 1 and 2).

The average duration of disease in those patients who simply were injected was six and one-half days; of those on combined treatment, in whom 0.2 gm. of sulpharsphenamin was given, about four days. In one case (Case 4, Table 1), which seems worthy of special mention, the patient had a marked peritonsillitis; there appeared to be an abscess, and incision was advised. Since the child was able to take nourishment, it was decided to defer operation, and we were astonished to see this inflammation disappear within two days of an injection of 0.1 gm. of sulpharsphenamin.

days. Such results are superior to those which we have encountered in the course of a somewhat extensive experience with this type of case. In some instances, pyorrhea alveolaris also responded to these measures; one of our colleagues, Dr. Julius Blum, treated a marked case of pyorrhea alveolaris in an adult with three intramuscular injections of 0.3 gm., with a very successful result. It would seem that this treatment might prove to be a valuable aid to the dentist in the treatment of this disorder.

It should be emphasized that when we refer to a "cure" we imply not only the disappearance of ulcerated tissue but also the replacement of the swollen and congested gum by normal gingival tissue, which does not bleed readily on pressure. This is a very severe criterion, especially when applied to children who are subject to repeated attacks of stomatitis and whose gums are frequently congested, bleeding at the least touch. The test was rigid, moreover, because we employed small doses, most of the patients receiving

TABLE 2.—*Twenty-Seven Cases of Stomatitis Treated with Sulpharsphenamin*

			Lesion		Treatment			
Case	Age, Years	Weight, Pounds	Degree	Duration, Days	Intramuscular, Gm.	Local, No. of Days	Previous Attacks	Comment
1	2	25	Moderate	3	0.1	...	None	
2	2	25	Marked	8	0.1	...	Repeated	
3	2	22	Moderate	3	0.1	...	Repeated	
4	2	23	Marked	6	0.1	...	None	
5	2	22	Marked	7	0.1	...	None	
6	3	29	Marked	21	0.4	...	None	Persistent bleeding of gums
7	2	29	Moderate	7	0.1	...	Repeated	
8	3	28	Marked	14	0.2	...	Repeated	Aphthous stomatitis
9	4	30	Moderate	8	0.2	...	None	
10	3	30	Marked	21	0.2	...	Repeated	Persistent bleeding of gums
11	6	38	Marked	2	0.2*	...	Repeated	
12	4	37	Marked	10	0.3*	...	Repeated	Most severe case
13	3	43	Marked	5	0.1	...	None	
14	4	33	Moderate	4	0.1	...	None	
15	3	31	Marked	17	0.1	...	None	Aphthous stomatitis
16	4	32	Marked, localized	6	0.1	...	Repeated	Confined to upper two molars
17	4	32	Mild	4	0.1	...	None	
18	2	27	Moderate	7	0.1	...	Repeated	
19	2	30	Marked	10	...	8	Repeated	
20	4	37	Marked	16	0.2*	...	None	Typical pyorrhea
21	4	39	Marked	21	0.2*	...	None	Pyorrhea confined to upper incisors and bicuspids
22	4	33	Marked, localized	21	0.2*	3	.....	Recurrence failure
23	3	28	Moderate	21	0.2*	3	None	Atypical case
24	4	32	Marked	5	0.2*	3	None	
25	2	27	Moderate	5	0.1	3	None	
26	3	32	Marked	19	0.2*	3	None	Aphthous stomatitis
27	3	36	Mild	8	0.2*	...	None	

* In these cases, 0.2 gm. was injected; in all others, 0.1 gm. was given.

In the diagnosis of Vincent's angina in children, one of the first signs is a painless unilateral enlargement of the cervical glands, associated with but slight constitutional symptoms. High fever is unusual. In this respect, as well as in the appearance of the lesion, this disease resembles diphtheria, from which at times it is with difficulty differentiated. It should be mentioned that the cases to which we have reference throughout this paper had all been tested for diphtheria by the Schick reaction, and immunized when necessary, and that repeated cultures of the throat were negative for Klebs-Loeffler bacilli. Furthermore, smears from the lesion showed the presence of numerous fusiform bacilli and spirilla in every case.

Twenty-seven cases of stomatitis likewise were treated. Of these, nineteen were typical cases of ulceromembranous gingivitis. Some of these were treated simply by intramuscular injections; in others, this method was combined with local applications of sulpharsphenamin. These results may be summed up by the statement that, in the former group, the lesions took about one week to heal, and that in the latter, in which local applications reinforced systemic treatment, the gums resumed a normal appearance in about five

only one injection of 0.1 gm. for the entire treatment. It was only after considerable experience with the drug that we resorted to 0.2 gm. in older children. It is fair to assume that by repeated injections a cure could have been obtained in a shorter time.

Sulpharsphenamin-Squibb was used throughout. The drug is dissolved in the ampule in the concentration of 0.1 gm. to 5 minims of distilled water. A little shaking is necessary for quick solution. A medium sized needle, about 18 gage, is used, and the injection is given in the buttock. In the course of fifty-one injections of sulpharsphenamin, no general or local reactions of any kind have been noticed. Irgang [14] reports that intramuscular injection is painful, more so than the subcutaneous method. Such has not been our experience; our children have not complained of any pain other than that caused by the introduction of the needle. The urine of each patient was examined before and after treatment, and no evidence of kidney irritation was found. The youngest child treated was 22 months old, the oldest 4 years, the weights varying from 22 to 43 pounds (10 to 19.5 kg.).

14. Irgang, S.: Am. J. Syph. 7: 318 (April) 1923.

COMMENT

There are cases of stomatitis which are due to a lack of antiscorbutic vitamin; furthermore, Gerstenberger [15] reports cures of stomatitis and Vincent's angina with vitamin B. It should therefore be added that all our patients were receiving adequate amounts of antiscorbutic vitamin and of vitamin B, getting at least half an ounce of orange juice daily besides the vegetables in their diet. It is true that Vincent's angina may undergo spontaneous cure. Such has been our experience and that of others. We do not believe, however, that patients having glandular enlargement will recover without treatment, unless at the expense of marked destruction of tissue.

The first sign of cure in Vincent's angina is the subsidence of the adenitis, this swelling disappearing before the lesion itself. Under simple local treatment, the glands remain enlarged after the ulceration is healed. It should be emphasized that marked improvement in Vincent's angina and ulceromembranous gingivitis treated with intramuscular injections of sulpharsphenamin is not apparent until the third or fourth day after injection. In this connection it may be added that Voegtlin, Johnson and Dyer [16] have shown that sulpharsphenamin exhibits its greatest parasiticidal effect three or four days after injection. The results in Vincent's angina are more remarkable than in gingivitis, most likely because the former is ordinarily more amenable to treatment. This treatment does not rid the mouth of fusospirillar organisms, which, in our experience, are evident in the smears from the gums and tonsils of many children with apparently healthy mouths.

SUMMARY

1. Sulpharsphenamin is a specific for "fusospirillar" infections of the mouth and throat.
2. One or two intramuscular injections usually cure.
3. Intramuscular injection combined with local applications of sulpharsphenamin hastens this result.
4. No local or general reactions were encountered after fifty-one injections.
5. This mode of therapy is particularly suitable, as intravenous medication is difficult in children.
6. It is of value in the treatment of pyorrhea.

100 West Kingsbridge Road.

15. Gerstenberger, H. J.: Etiology and Treatment of Herpetic Stomatitis and Herpes Labialis, Am. J. Dis. Child. **26**: 309 (Oct.) 1923.
16. Voegtlin, Carl; Johnson, J. M., and Dyer, H.: Pub. Health Rep. **37**: 2783-2798 (Nov. 10) 1922.

ASTHMA DUE TO GRAIN RUSTS*

F. T. CADHAM, M.D.
WINNIPEG

During recent years, in parts of the Northwestern states and western Canada, rust fungi have attacked a considerable portion of the growing grain. Wheat, barley, oats and rye in the maturing stage are hosts for special rusts. Wheat rust (*Puccinia graminis*) is the most prevalent. Over large sections of the country, given proper conditions of heat and moisture, no single plant stem escapes infection. Immense numbers of spores are developed, so that during the harvest season it is not uncommon to see binders working in the grain fields enveloped in a cloud of rust spores. Harvest workers must inhale great numbers of these fungi.

I have seen three patients suffering from asthma, in whom the exciting cause of the attack was a proximity to these rusts. The history of each case is similar: there was a short period of exposure to the infected grain, during which the person was evidently sensitized; then each one left the country or district for a year or more. Asthmatic attacks developed when the patient was once more exposed to rust-infected grain.

REPORT OF CASE

V. E. L., a farmer in Manitoba, aged 29, was exposed in 1916 to some wheat and oat rust that appeared in his district. In January, 1917, he left for overseas and returned in June, 1919. In August, 1919, there was rusted grain on his farm, and he developed a severe asthma. Attacks are now brought on by exposure to the dust of infected straw. In winter, spring and early summer he has comfort unless he handles grain. A whiff of a few rust spores is sufficient to induce a paroxysm. The patient received some relief from a vaccine prepared from wheat rust.

Each case gave a positive cutaneous reaction to these fungi: the one cited reacted to the rust of both wheat and oats.

Our attention is usually focused on the pollens when, during August in the open country, persons develop asthma or hay-fever. Rust fungi, which are wind borne, may be overlooked as an etiologic factor in some cases.

* From the Department of Bacteriology, University of Manitoba Medical School.

HEREDITY AND HYPERTENSION*

JAMES P. O'HARE, M.D.
WILLIAM G. WALKER, M.D.
AND
M. C. VICKERS, A.B.
BOSTON

No one who has had any contact with hypertensive patients can escape the impression that heredity plays an important rôle in the production of high blood pressure. Such an impression is obtained from observing certain families in which an extraordinary number of the individuals comprising them have died of vascular disease. Rosenbloom in 1922 [1] reported one such family in which ten of the twelve members had high blood pressure. Raymond [2] reported another in which nine members died of apoplexy. In our clinic we have had several such families. One of them contains nine members who have suffered from vascular disease of one type or another. We have another patient with a coronary infarct in whom heredity seems to offer the only possible etiology. He is 42, has a negative Wassermann reaction, has never worked hard physically or mentally, and is certainly not of the nervous type. His family history is of extraordinary interest because of the diversity of vascular diseases in it. His father had extensive arteriosclerosis. His mother has chronic nephritis and hypertension; one maternal aunt has had a cerebral hemorrhage; another died of angina pectoris, and a maternal uncle died of cardiac muscle failure. In addition, he has a younger sister with marked vasomotor symptoms.

To those who are seeing any large nunmber of hypertensive patients, the importance of heredity is suggested also by the frequency with which the family histories in

* From the Medical Clinic of the Peter Bent Brigham Hospital.
* Read at the meeting of the American Physicians, Atlantic City, May 7, 1924.
* This paper is No. 30 of a series of studies in metabolism from the Harvard Medical School and allied hospitals. The expenses of this investigation have been defrayed (in part) by a grant from the Proctor Fund of the Harvard Medical School for the Study of Chronic Diseases.
1. Rosenbloom, J.: J. Lab. & Clin. Med. **8**: 681 (July) 1922.
2. Raymond, quoted by Allbutt: Diseases of the Arteries **1**: 165, 1915.

general contain one or more members who have had vascular disease. These impressions have led us to feel that perhaps heredity has not been granted its rightful place among the etiologic factors responsible for increased blood pressure.

The textbooks and the literature all refer to heredity as one of the important factors in the etiology of hypertension. The references, however, are, as a rule very general or are case reports of families like those mentioned previously. Janeway [3] is one of the few in the recent literature who gave figures for the incidence of heredity in his own patients. He stated that less than half his patients had a family history of vascular disease and, therefore, drew the conclusion that heredity, although an important element, is only a subordinate or accessory influence in the production of hypertension.

We have long felt that there was much more to heredity as an etiologic factor than Janeway was willing to allow. A study of our cases seems to prove that this is correct.

Incidence of Vascular Disease History in Families of Vascular Disease Patients and Control of Nonvascular Disease Patients

	Total Patients	Average Age	Family History of Vascular Disease, Per Cent.	Early Symptoms of Vasomotor Weakness in Patient, Per Cent.
Hypertension	300	51.5	68.0	42.0
Controls	436	36.2	37.6*	23.6†
Controls	128	45 +	37.5	....

* Vasomotor symptoms in 13 per cent.
† Family history of vascular disease in 12.6 per cent.

We have analyzed the family histories of 300 unselected cases of permanent hypertension taken from the records of the Peter Bent Brigham Hospital and from the private records of one of us (J. P. O'H.). In 204, or 68 per cent., of this group there was a definite history of apoplexy, heart disease, nephritis, arteriosclerosis or diabetes in one or more members of the patient's family. In those cases taken from our personal records, which made up more than one third of the group, the percentage incidence of vascular disease reached the high level of 76 per cent. In our entire series, the number of relatives with vascular disease averaged 2.5 per patient, with the minimum one and the maximum nine. The large bulk of the relatives that had vascular disease of course had heart, cerebral or kidney disease. We do not feel, however, that the individual figures for these three diseases —taken as they are from the patients' stories—are sufficiently accurate to stress them.

The percentage incidence of vascular disease in this group was so high that it raised the question: "Is not vascular disease a very common finding in any family history?" To settle this question we analyzed a control series of 436 consecutive cases of nonvascular disease. (The number 436 represents the total number of patients admitted to the hospital for disorders other than heart, kidney, cerebral disease or diabetes during the interval in which one portion of our 300 cases was being collected.) In this control group there was a percentage incidence of familial vascular disease of 37.6 per cent.

The average age in our control series, however, was only 36 years, in contrast with that of our hypertensive group, in which it was 52 years. Thinking that an older group of controls would show a higher hereditary incidence, we excluded from our control series all patients under 45 years of age. This left 128 cases. The incidence of familial vascular disease in this group was practically identical with that found in the larger control group, i. e., 37.5 per cent.

These cases of ours demonstrate rather conclusively, we think, that a family history of heart, kidney, cerebral disease, etc., is almost twice as common in a patient with hypertension as in the ordinary patient who has no increased blood pressure.

During this study another fact was brought out that, to us, seems to have considerable significance. We were long cognizant of the fact that in the early history of hypertensive patients there was an occasional story of symptoms indicating vasomotor weakness, nervous temperament, etc. Such symptoms include frequent epistaxis, abnormal flowing at menstruation, migraine, cold, sweaty and cyanotic hands, flushing, blushing, extreme sensitiveness, a high strung and nervous temperament, etc. These various symptoms are usually first noted in the second decade of life. Alvarez,[4] in his work among drafted men, spoke of cyanotic hands as a valuable sign of the hypertensive diathesis. Cummings [5] also has written about such cases. We were unaware, however, how very common these symptoms actually were. Looking into the past history of these 300 hypertensive patients, we found that 42 per cent., almost one half, had had one or more of these symptoms. It is definitely certain that this 42 per cent. does not at all represent the maximum, because in 100 of these patients who were questioned especially for these symptoms we were able to establish their presence in 87 per cent. By contrast, in the control series these symptoms of vasomotor weakness, etc., were present in only 23 per cent. Furthermore, it is very significant that more than one half of these 23 per cent. could be definitely correlated with a family history of vascular disease. Does this not suggest the possibility that later in life such patients may develop an increased blood pressure?

CONCLUSIONS

From this study it seems reasonable to draw two main conclusions. The first is that heredity undoubtedly plays one of the most important rôles in the production of hypertensive disease. The second is that Nature very frequently sounds a warning as early as the second decade in life of the possible development of hypertensive disease in the fourth or fifth decade. From these two it seems fair to draw another conclusion: that physicians and parents in these "vascular" families should watch over the younger members and try to protect them against the stresses and strains that also play such an important part in the production of hypertension.

721 Huntington Avenue.

3. Janeway, T. C.: Boston M. & S. J. **174**: 925 (June 29) 1916.

4. Alvarez, W. C.: California State J. Med. **17**: 367 (Oct.) 1919.
5. Cummings, R. S.: California State J. Med. **17**: 373 (Oct.) 1919.

Humanitarian Aspect of Animal Pathology.—The humanitarian aspects of animal pathology coincide with its relation to human medicine. Whatever information it may contribute to the elucidation of human diseases should come under this head. This may be both direct and indirect. Of immediate value to human medicine and the public health has been the control of infectious agents directly transmissible from animals to man.—Theobald Smith: *Edinburgh M. J.* **31**:232 (April) 1924.

MARRIAGE OF FIRST COUSINS IN DIRECT LINE OF DESCENT THROUGH FOUR GENERATIONS

REPORT OF A FAMILY

DOUGLAS P. MURPHY, M.D.

RUTHERFORDTON, N. C.

It is commonly thought that the marriage of first cousins is detrimental to the health of the offspring. Mental deterioration, physical abnormality and lowered vitality are said to result.

Contrary to this popular belief, students of eugenics now think that these marriages are not inimical to the welfare of the offspring. As early as 1878, Huth,[1] who collected the available data published prior to that date, came to the same conclusion. He stressed the bias of the investigators, and the lack of common knowledge on the incidence of these deviations in the human race generally. He suggested that nearness of kin might give the individuals concerned a better knowledge of each other, and thus enable them to choose more suitable husbands and wives.

Crawley[2] is certain that the intermarriage of first cousins has not proved itself deleterious to the offspring.

Hutchinson,[3] and East and Jones,[4] in addition to more recent writers, feel that the only injury due to inbreeding comes from the inheritance received, and is not the result of consanguinity.

The family described here is of interest for several reasons: the large number of marriages between first cousins; the fact that four of these occurred in direct line of descent, and the striking lack of mental and physical deterioration as a result of such constant intermarriage.

The earliest known member of this family came from Germany, in 1731, and settled in Pennsylvania. He died there, leaving twenty-four children, one of whom migrated to western North Carolina, where he settled in 1797. Since that date, his descendants have remained to a great extent in the same locality. Isolation and a bent toward intermarriage produced many families within the clan.

Comparative Death Rate in Families

	Per Thousand
Death rate for the county (1918-1922, inclusive)	73.7
Death rate for the state (1918-1922, inclusive)	83.6
Death rate of infants in marriages in which the parents were first cousins (six marriages)	363.6
Death rate of infants in marriages in this family other than those in which the parents were first cousins	220.9

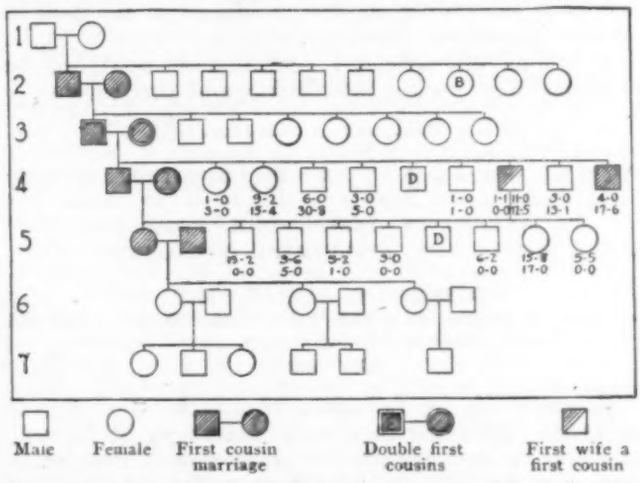
Every member of this family that lived to adult age married and had many children. The later generations seem to be quite as prolific as were the earlier ones.

Farming was the chief occupation of these families until cotton mills became established; since that time many have given up the farm for the better living conditions of the mill towns.

Education for all has been about the same in amount, usually only a few months of school during three or four winters. Practically no members of these families have received more education, and for this reason the social and economic status has remained stationary throughout the four generations. All, however, have been able to make a good living.

As will be seen by the accompanying chart, there were seven cases of marriage between first cousins. The second couple of these were double first cousins. But this has had no effect on the number of children as a result of these marriages, or on the health of the children. As far as that was concerned, it was as good as the health of any of the other citizens in the same community.

RESULT OF MARRIAGE OF FIRST COUSINS



B, queer mentally; *D*, death under 2 years; upper left figure, children of this marriage; upper right figure, dead under 2 years; lower left, grandchildren of same marriage; lower right, grandchildren dead under 2 years.

There is no record of any physical abnormalities anywhere in the family, and there is only one case of slightly impaired mentality, which occurred in the third generation, as shown in the chart. But in view of the fact that the following generations are normal, this one abnormal individual produced cannot be attributed to the inbreeding in its parents.

The only noticeable feature in this family, from a pathologic point of view, is the apparently high infant mortality, which means low vitality. The accompanying table is based on an analysis of the facts concerning the death rate in the family.

From these figures it is readily seen that the death rate per thousand of population is decidedly higher in this family than in the other families throughout the same community, during the last five years for which statistics are available. Also, the death rate is considerably higher when the inbreeding is most marked.

This information concerning the deaths was secured from the oldest member of the family, who is now 80 years old and still has a bright mind. She was certain that all the deaths of infants were due to summer complaint, and none to any other cause. She was especially sure that these deaths were not due to any abnormality.

Therefore, since all the branches of this family were of the same physical, intellectual and economic status, and lived in the same locality under the same conditions, it seems possible that the exceptionally high infant death rate was caused by constant inbreeding.

SUMMARY

1. In the family tree presented, seven marriages took place between first cousins.

1. Huth, A. H.: The Marriage of Near Kin, New York, Longmans, Green & Co., 1887.
2. Crawley, A. E.: Exogamy and the Mating of First Cousins, in Anthropological Essays presented to Edward Taylor, Oxford, Clarendon Press, 1907, pp. 51-63.
3. Hutchinson, J.: Marriage of First Cousins, Polyclinic, London 2: 343-346, 1900.
4. East, E. M., and Jones, D. F.: Inbreeding and Outbreeding, Philadelphia, J. B. Lippincott Company, 1919.

2. Four of these were in direct line of descent.
3. The second in direct line was a marriage of double first cousins.
4. No physical abnormalities could be found in the entire family.
5. Only one case of mental deviation, of mild type, was present, early in the family tree.
6. The only pathologic finding possibly the result of inbreeding was the high infant mortality.
7. This mortality was highest in the families in which the relationship of the ancestors was closest.

CONCLUSIONS

From the foregoing investigations, it is possible to assume that:

1. The inbreeding in this family is a cause of a decided increase in infant mortality.
2. Mental and physical deterioration need not be expected to follow the intermarriage of first cousins.

VOLVULUS OF THE FALLOPIAN TUBE

IN A CASE OF TUBERCULOUS PYOSALPINX SIMULATING GONORRHEAL PYOSALPINX

JOSEPH J. WELLS, M.D.
Instructor in Surgery, New York Post-Graduate Medical School and Hospital; Assistant-Adjunct Surgeon, Bronx Hospital
NEW YORK

Volvulus of the fallopian tube is a rather infrequent and interesting condition. A survey of the literature for the last twenty-five years reveals that while torsion of the fallopian tube is not a medical curiosity, it is exceedingly rare and only infrequently reported. Smith and Butler [1] thoroughly reviewed the literature up to 1921, and report a case of their own occurring in a girl 9 years of age. They classify the different types of adnexal disease into two main divisions:

I. Those occurring in pathologic adnexa.
II. Those occurring in normal adnexa.

These are further subdivided as follows:

I. Pathologic Adnexa.
  1. Torsion of ovarian tumors.
    A. Before puberty.
    B. After puberty.
      (*a*) In the nonpregnant state.
      (*b*) During pregnancy and the puerperium.
  2. Torsion of tubal tumors, including hydrosalpinx, hematosalpinx, and pyosalpinx.

II. Normal Adnexa.
  1. Within the abdomen.
    A. In the nonpregnant state.
    B. During pregnancy.
  2. Within a hernial sac (not simple strangulation).

Torsion of the uterine adnexa is relatively infrequent before puberty. During the period from 1900 to 1921, only twenty-five cases of torsion of ovarian tumors or adnexa were reported in the literature. Only fourteen cases of torsion of normal adnexa have ever been reported.

The causes of torsion of the adnexa are not very well understood. A long, loose mesosalpinx seems to be one of the main factors predisposing to this accident. Abnormal length of the tube or mesovarium also plays an important rôle. It can perhaps be appreciated how, with a long, thin mesosalpinx and a heavy, nonadherent tumor, torsion may result. It occurs most frequently in association with the menstrual period, or during pregnancy or the puerperium. Schweizer,[2] while reporting two cases, gives an interesting discussion of his views concerning the mechanism involved in the torsion.

SYMPTOMATOLOGY

The symptoms are those of an acute abdominal crisis. The onset is usually with severe abdominal cramps, which at first are generalized, but soon become localized to the lower abdominal quadrant, often on the side affected but sometimes referred to the opposite side. The temperature and pulse during the first few hours may be normal, but soon, owing to toxic absorption, both temperature and pulse begin to rise. The white blood corpuscles are increased, with a relative increase of the polymorphonuclears.

DIAGNOSIS

The diagnosis of tubal torsion has never been made before operation. The most frequent diagnosis made has been acute appendicitis.

REPORT OF CASE

History.—D. K., an unmarried woman, aged 22, a bookkeeper, with an unimportant family history, and a past history negative except for the usual childhood diseases, at about 9 a. m., April 22, 1924, while on her way to business, was seized with severe abdominal, cramplike pains in the lower part of the abdomen on both sides, but especially marked on the left side. During the next two to three hours, she vomited frequently. The vomitus consisted of undigested food. When the patient was seen by me, five hours after the onset of the attack, the pains had almost entirely disappeared, and the vomiting had ceased. The patient was extremely nervous and of the hysterical type, but she did not appear acutely ill. The temperature, pulse and respiration were normal. Abdominal examination revealed slight tenderness in the left lower quadrant. On deep palpation over McBurney's area, considerable tenderness was noted. There was no rigidity. No masses were palpable. A rectal examination was not done at this time. Nothing in the past history was of moment. The menstruation had always been normal. It is interesting to note that the patient was menstruating during the first day of the attack. The genitourinary history was negative, as also were the urinary findings. A tentative diagnosis of subacute appendicitis was made, and an ice bag was applied to the right lower quadrant.

During the next twenty-four hours, all symptoms disappeared and the patient got out of bed. At this time, she had a second attack of cramps and vomiting, similar to the initial attack. The temperature had risen to 102.2 F., the pulse was 120. Abdominal palpation revealed findings similar to those of the previous day. A rectal examination showed marked tenderness on the right side. No mass could be palpated.

The blood count was: white blood cells, 21,000, with 91 per cent. polymorphonuclears.

An immediate operation was advised and accepted.

Operation.—April 23, at 7 p. m. at the New York Post-Graduate Hospital, under gas-ether anesthesia, a right rectus incision was made. No free fluid was present; the appendix apparently was normal. It was excised. The right adnexa were brought into the wound, and what appeared to be a gonorrheal pyosalpinx was excised. The left adnexa were then brought into the wound. At first the mass appeared like, and was suspected of being, a gangrenous loop of small intestine. By manipulating the mass, it proved to be a volvulus of the left fallopian tube, the torsion being from left to right, making three and one-half complete turns on its axis. The left tube was excised. Both ovaries were normal and were left in. The left ovary was not concerned in the torsion. The abdominal wall was closed in layers with pelvic drainage. The patient made an uneventful recovery.

1. Smith, R. R., and Butler, W. J.: Am. J. Obst. & Gynec. **2**: 507 (Nov.) 1921.

2. Schweizer, R.: Schweiz. med. Wchnschr. **52**: 1045 (Oct. 26) 1922.

Pathologic Findings.—One tube showed the lumen filled with necrotic masses. The folds could not be recognized because they were fused together by newly formed tissue composed of small and large nodules. These nodules were formed by an arrangement of pale polyhedral cells with large, pale nuclei, among which lymphocytes were found. Beginning caseation was present. Here and there giant cells of Langhans' type were found. Besides the nodules, there was diffuse infiltration by polymorphonuclear leukocytes, lymphocytes and large mononuclear cells.

The hemorrhagic tube showed two thirds of the wall diffusely infiltrated by blood. The blood vessels were engorged and dilated, and the structure of the wall of the tube could hardly be recognized. The formation of the nodules was not definite, but among the lymphocytes and leukocytes occasionally one could find giant-cells of the type of Langhans' cell.

2000 Prospect Avenue.

INTERMITTENT FEVER OF SEVEN MONTHS' DURATION DUE TO MENINGOCOCCEMIA

(WITH AN ANALYSIS OF SIXTY-EIGHT REPORTED CASES OF MENINGOCOCCEMIA) *

WILLIAM DOCK, M.D.
BOSTON

Prolonged meningococcus infection in the blood stream, not preceded or accompanied by, and not always terminating in, meningitis, gives a clinical picture unfamiliar in this country, in which only nine cases have been reported. This is particularly true of the type characterized by tertian or quartan fever curves, although this feature was emphasized by Morgan [1] and by Rolleston [2] in their summaries of the literature. I feel that failure to recognize this condition during life, in the case here described, is but a reflection of the lack of knowledge of this disease in many medical centers.

REPORT OF CASE

History.—A truck-driver, aged 41, was admitted, Jan. 21, 1924, with the diagnosis of fever of unknown origin. Malaria, erythema nodosum, and subacute bacterial endocarditis had been considered.

His past history was not remarkable. He had never been in regions where malaria was endemic. There was no history of gonorrhea, but this part of the history was considered unreliable.

During the second week of July, 1923, he had a sudden chill; the temperature rose to 103, but returned to normal within a few hours. He had some stiffness of the knees for five days. Another chill occurred ten days after the first, and then on every third day for nine days, although he was taking 2 gm. of quinin daily. For ten days he was in the Cambridge Hospital, had fifteen teeth removed, and had no real chills but an intermittent quartan fever. A red rash appeared on the legs during the febrile periods, but the physical findings were otherwise normal.

For two weeks he was well, but during the next month he had chills, with some stiffness of the knees, every third day. He remained in bed two weeks, and then had no symptoms for three weeks. From the middle of October, 1923, until Jan. 21, 1924, when he entered the hospital, he had a febrile rise every third or occasionally every fourth day, with recurrent rash, pain in the legs, frontal headaches, and a gradual loss of 20 pounds (9 kg.) in weight. Although he lost strength, he felt quite well between chills.

Physical Examination.—He was well developed, slightly undernourished, and during the first five weeks in the hospital did not seem sick. There were at times pale red to red-brown papules, from 5 to 15 mm. in diameter, sparsely scattered in the skin of the trunk and extremities. Some of these blanched on pressure; some were tender; none had white centers. For days at a time the only visible lesions were fading spots on the legs.

There was a short, fairly loud systolic murmur at the apex, which had been first noted a month before admission. The pulmonic second sound was accentuated. The blood pressure was 130 systolic, and 80 diastolic. The liver and spleen were never palpable. The prostate and seminal vesicles were normal on rectal examination, and no pus was obtained by prostatic massage.

The rise in temperature was never sustained more than eight hours. The hemoglobin was 95 per cent.; red count, 4,500,000. No malarial parasites were found in fresh and stained preparations made on seven occasions. The white count varied from 14,000 to 19,000 between chills; during the febrile periods it rose as high as 31,000. Two blood cultures taken on beef infusion agar and broth during the first two chills were sterile. The Wassermann test, the agglutination tests with *B. typhosus, B. paratyphosus* A and B, and *B. melitensis,* and the gonococcus complement fixation test were negative. Rare to occasional red blood cells were found in the urine on three examinations after the twenty-fifth day.

From infusion broth flasks, enriched with one-half volume of ascitic fluid and inoculated with blood during the chills on the twenty-third and again on the twenty-sixth day, we obtained a gram-negative, pleomorphic diplococcus, the colonies just visible at twenty-four hours on the first subculture on blood-agar. Anaerobic cultures and poured plates remained sterile. The organisms grew well on blood or ascites agar at 37 C., but not on ordinary mediums or at room temperature. They did not grow on ascitic broth sugar mediums, so that the fermentation tests were not successful at that time. Saline suspensions made from the second and third subcultures were not agglutinated, even at 55 C. over night, by the patient's serum or by a polyvalent antimeningococcus serum, Type 1 antipneumococcus serum, or normal horse serum, in dilutions from 1:10 up to 1:640. A suspension from the seventh subculture was agglutinated, after eighteen hours at 37 C., in dilutions up to 1:80, by polyvalent antigonococcus serum (titer 1:2,000). Unfortunately, antimeningococcus and normal horse controls were not done with this suspension.

Course.—During the night of the thirty-sixth day the patient had a very severe frontal headache, and by morning he was in coma, with left-sided atony, absent abdominal reflexes, but without stiff neck or a positive Kernig sign. There was a positive Babinski sign on the right. The fever continued to rise all day; the white count also rose to 43,000. It was only the next morning that the patient had a stiff neck and positive Kernig sign. Lumbar punction gave 15 c.c. of turbid fluid, flowing very slowly. The cell count was 2,000 per cubic millimeter, with 90 per cent. polymorphonuclear cells. There were occasional gram-negative diplococci, chiefly extracellular. The patient died twenty-eight hours later.

The clinical diagnosis was gonococcus endocarditis; cerebral infarct; meningitis.

Necropsy.—This was started forty minutes after death. There was marked hyperemia and edema of the brain, with thin, purulent fluid throughout the subarachnoid spaces, especially in the sylvian fissure and at the base of the brain. The brain had no localized areas of softening. The paranasal sinuses, middle ears, heart valves, prostate, seminal vesicles, urethra, and synovial membranes of the right knee were unchanged. There was an acute bleeding gastric ulcer, but no other significant gross or histologic changes of the tissues of the neck, thorax or abdomen. The spleen weighed only 110 gm. Cultures from the prostate and seminal vesicles were sterile; the spleen gave an abundant growth of extremely fine colonies of gram-negative diplococci, the spinal fluid, many large, moist colonies.

Organisms obtained from the blood and spinal fluid during life formed acid on ascitic litmus maltose and dextrose agar plates, thus differentiating them from gonococci, which ferment only dextrose. Suspensions of the first subcultures from the spinal fluid and of the sixteenth subculture of the

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* From the Medical Service of the Peter Bent Brigham Hospital, and the Department of Bacteriology and Immunology, Medical School of Harvard University.

1. Morgan, H. J.: Chronic Meningococcus Septicaemia, Bull. Johns Hopkins Hosp. 32: 245 (Aug.) 1921.
2. Rolleston, H.: Lumleian Lectures on Cerebrospinal Fever, Lancet 1: 541 (April 12) 1919.

blood culture taken on the twenty-third day were both completely agglutinated after one hour at 45 C. in dilutions up to 1:80 of a fresh polyvalent antimeningococcus serum (Massachusetts Department of Public Health), and in no dilution of the other serums tested. After eighteen hours at 45 C., there was agglutination in this serum up to 1:160; in the polyvalent antimeningococcus serum used in earlier tests (New York State Department of Health) and in Type I (Gordon) antimeningococcus serum and the polyvalent antigonococcus serum there was agglutination up to 1:80. There was slight agglutination in the 1:20 Type II antimeningococcus serum; none in normal horse serum, or Type III or IV antimeningococcus serum.

The bacteriologic diagnosis was: meningococcus, paranormal type.

ANALYSIS OF PREVIOUSLY REPORTED CASES

In compiling the reported cases of this type of sepsis, we have borne in mind the atypical cases of cerebrospinal fever with few meningeal symptoms even at the time when examination of the spinal fluid shows infection of the meninges. We therefore consider as meningococcemia only those cases in which there is a febrile period of at least a week, without meningeal symptoms, and whose clinical course changed abruptly if meningitis supervened.

Among sixty-eight patients, only ten were females; forty-one were soldiers. There was meningitis in thirty-eight; in two others without definite signs of meningitis, the spinal fluid had a slight increase in cells and globulin, although it was sterile. The spinal fluid was negative on one examination in eighteen cases, on two examinations in two, on three examinations in one, and on four in another. In five of these cases with normal fluid, meningitis developed later, from twelve days to nine weeks after lumbar puncture.

These patients all had fever and frontal headache of varying intensity. The fever was intermittent daily in forty-nine; two-day cycles occurred repeatedly in thirty-seven, three-day cycles in twenty-one, and four-day cycles occasionally in three. Only four of the tertian or quartan recurrences were unmixed with quotidian. The closest approach to regular intermittence was a case in which there were seven consecutive tertian cycles, varying in length, however, by from four to eight hours. In seven cases it is noted that the patients felt very well beween chills. Recurrent rash was seen in fifty-three cases, with true nodules in three; joint pains in forty-three cases, and suppurative arthritis in only three. Other complications were: splenic enlargement, nine cases; aortic endocarditis, three; mitral, two; aortic and mitral, two; and one case each of meningococcus empyema; suppurative orchitis and acute hemorrhagic interstitial nephritis; thyroiditis and bilateral parotitis and orchitis; retinal hemorrhage and iridocyclitis, and extradural abscess. One patient alone had a leukopenia; the rest had leukocytosis, and in five moderate mononucleosis. Anemia (red counts of 3,500,000 or less) occurred in seven; of these three had endocarditis. The meningococcus was isolated from the blood in forty-one; in fifteen of these, only on medium enriched with ascitic fluid or serum-water. In ten, blood cultures were repeatedly sterile; in only two of these were enriched mediums used. In twenty-three cases the diagnosis was confirmed by finding meningococci in the spinal fluid when meningitis supervened, in four by agglutination tests with the patients' serum against various types of meningococci, in one by the striking results of antimeningococcus serum treatment.

Three of the seven patients with endocarditis received serum, but died; three died without specific treatment, and one recovered following two intravenous injections of distilled water, 500 and 600 c.c. In two of these fatal cases the patients also had meningitis. The mortality in the cases uncomplicated by endocarditis was surprisingly low, with or without specific treatment. Of nineteen serum-treated patients without meningitis, only one died (extradural abscess; total dosage of serum, 600 c.c.); of twenty-six serum-treated patients with meningitis, three died: one had received 470 c.c. of specific type serum in twenty days; one had fulminating meningitis nine months after recovery from two months of meningococcemia with intermittent fever; one had pulmonary tuberculosis and developed tuberculous meningitis after the meningococcus sepsis had subsided. Only one of ten untreated patients with meningitis, and one of six untreated patients without meningitis died. Two of these cases not treated specifically had immediate "cures," in one after the intramuscular injection of 20 c.c. of sterile pus, in the other after the intravenous injection of milk.

Nine of the nonfatal cases mentioned above failed to respond to the polyvalent or prevalent type serums used (total dosage of serum 20, 20, 50, 100, 120, 160, 260, 290 and 360 c.c.). Four of these patients recovered spontaneously some weeks later; two others, after using specific type serums in relatively small dosage; one after intravenous injection of milk; one, after intravenous injection of vaccine (stock meningococcus); one, after eight transfusions of from 20 to 40 c.c. of citrated blood.

COMMENT

It is evident from this summary of previous cases that we were dealing with a typical case of meningococcemia: with intermittent fever and rash, joint pains, frontal headaches but apparent good health between chills, continued over more than seven months before abruptly developing a meningitis, which proved fatal in three days. This case was febrile for two months longer than any reported case, and was unusually regular in its quartan recurrence. The cycles did occasionally have an extra day in length, and always varied by from two to four hours. Our error in diagnosis, due largely to unfamiliarity with meningococcemia, was based in part on three misleading findings—the appearance of a murmur during the course of the disease and the occurrence of red cells in the urine pointed toward an endocarditis, while the agglutination in antigonococcus serum seemed to identify the organisms isolated from the blood ten days before meningitis developed. It is important to note that the organisms, when first isolated, were inagglutinable in antimeningococcus or other serum, and that the first antigonococcus titrations were uncontrolled. Our difficulties with liquid fermentation tests and with cross-agglutination by antigonococcus serum were solved by using ascitic litmus agar plates, and one hour, rather than overnight incubation. Elser and Huntoon [3] and Vannod [4] had previously noted these facts, and pointed out the specificity of the immediate reactions in dilutions even as low as 1:2, when prolonged incubation gave as strong reactions with the antigonococcus as with the antimeningococcus serum.

The features of the disease are so striking that the diagnosis is not difficult. It is especially important not to confuse it with bacterial endocarditis, which has so grave a prognosis, since meningococcemia has a relatively low mortality, and is amenable to treatment.

3. Elser and Huntoon: Studies on Meningitis, J. M. Res. **15**: 373, 1909.

4. Vannod, T.: Ueber Agglutinine und spezifische Immunkörper in Gonococcenserum, Deutsch. med. Wchnschr. **2**: 1984, 1906.

Gonococcus sepsis, usually with a typhoid type of fever, but with similar skin and joint manifestations, always occurs within a few months of the acute symptoms of infection. There is one case [5] of such infection with a course so like meningococcemia that the patient was treated, unsuccessfully, with antimeningococcus serum, until the organisms from the blood had been identified definitely as gonococci. Although the diagnosis may be confirmed by the agglutination of meningococci by the patient's serum, by the results of specific treatment, or by the onset of meningitis, the most important point is the isolation of the organisms from the blood. Ordinary routine blood cultures are of little value, as they have been sterile in more than a third of the cases in which cultures on enriched mediums were successful. Using ascitic broth, inoculated at the bedside during the rise in fever, and immediately returned to the incubator, positive cultures may be obtained as successive chills.

TREATMENT

Our analysis of previous cases brings out two striking facts. Lumbar puncture in this type of sepsis did not cause immediate meningeal localization in even one of eighteen cases, and the subsequent localization in these cases was less frequent than in the whole series. However, there is no evidence for the view suggested by Lundie, Thomas, Fleming and MacLagan [6] in regard to the acute type of cerebrospinal fever, that lumbar puncture during the stage of sepsis may arrest the disease, alleviate symptoms, or prevent meningeal infection. In the second place, whether or not the patients are treated, whether or not they develop meningitis, the prognosis is far better than in ordinary meningococcus meningitis, even when treated. This, however, is what we should expect, since those cases whose serums were examined for antibodies showed agglutination of meningococci in dilutions as high as 1:400. In only twelve of forty-seven cases did polyvalent or prevalent type serum fail to produce an immediate improvement, and two of these yielded to specific type serum. In occasional instances, vaccine or nonspecific protein caused striking "cures." With endocarditis, treatment seems ineffective.

SUMMARY

The important points brought out by a fatal case of meningococcemia and a review of reported cases are:

1. A fever of unknown origin, lasting seven months and ending abruptly in meningitis, was due to meningococcus sepsis, not localized on the heart valves.
2. The intermittent fever, almost quartan but slightly irregular, the recurrent rash, headache and joint pains, together with the relatively healthy appearance of the patient form a characteristic disease picture.
3. Negative routine blood cultures on ordinary mediums are of no value in excluding this type of infection, for with ascitic broth, carefully inoculated, the organisms may be obtained repeatedly.
4. The organisms may be inagglutinable when first isolated; later they may be agglutinated as strongly by antigonococcus as by antimeningococcus serum if incubated over twelve hours, though the immediate reactions are specific.
5. Such infections should be treated intensively with polyvalent antimeningococcus serum, and the inability to identify or agglutinate the organisms from the blood, or the supposed infection of the heart valves, are not valid reasons for withholding specific treatment.

5. Bloch, M., and Hebert, P.: Fièvre pseudo-palustre gonococcémique, Bull. et mém. Soc. med. d. hôp. de Paris **44**: 277 (Feb. 27) 1920.
6. Lundie, Thomas, Fleming and MacLagan: Epidemic Cerebrospinal Fever: Its Recognition and Treatment, Brit. M. J. **1**: 836, 1915.

EFFECT OF TONSILLECTOMY ON THE GENERAL HEALTH OF TWELVE HUNDRED CHILDREN

AS COMPARED WITH AN EQUAL NUMBER NOT OPERATED ON *

ALBERT D. KAISER, M.D.
ROCHESTER, N. Y.

The operation for the removal of tonsils and adenoids has become such a common one that it is no longer restricted to cases in which the tonsils are obviously diseased. A so-called prophylactic tonsillectomy is now generally performed, so that the indications for the removal of these organs need not be very definite. The popularity of this procedure has given hope that all sorts of ills may be prevented. Because of the widespread interest in this operation, it is of importance to endeavor to estimate its value on the ultimate health of the child. There is today considerable difference of opinion as to what constitutes a just cause for the removal of the tonsils and adenoids. The divergent views, however, are not on the extreme cases, for it is usually conceded that an operation removing a diseased focus will bring about a favorable result and be of permanent benefit to the child. In the vast majority of children, however, the indication for operation is not so positive, and it is this great average group in which the end-results are particularly of interest. Are these children permanently benefited by the operation? is an honest question.

The real value of the operation can be determined only by repeated examinations of the children before operation and at stated intervals after the operation. They must be compared with children during the same periods who were not operated on, but in whom the indications for tonsillectomy were the same as in those operated on. Such a study has been made to show what the operation has done for 1,200 children contrasted with an equal number who were not operated on.

Two years ago, 5,000 children operated on one year before were reexamined. The results of these examinations over the one year period were most encouraging as compared to the years previous to operation. This year a smaller group, but representing a cross section of the large number operated on, was examined three years after operation. Careful histories were taken from the parents of these children, and a thorough examination was given them. Special attention was focused on the heart condition, the glands of the neck, the throat, the teeth and the adjacent sinuses. In order to have honest controls, children were examined in the schools in whom the recommendation for tonsillectomy had been made three years before but no consent had been obtained and the child had continued along with the child operated on. There was a definite cause for operation in both groups and, as accurately as one can judge, the indications for operation were about the same. In order to measure the effect of the operation on the child three years later, three factors were considered: (1) the presence or absence of subjective symptoms referable to the throat; (2) the incidence of infections, and (3) the state of nutrition. With this information on a group of children that had been operated on, and like information on an equal number of children that had not been

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operated on, conclusions that are of some value can be drawn.

An analysis of the complaints in the group operated on shows that by far the most common one was mouth breathing. Ten hundred and fifty-seven out of the 1,200 were mouth breathers. Three years after tonsillectomy and adenectomy, only 122 were reported by the parents to be mouth breathers. Of this number, two

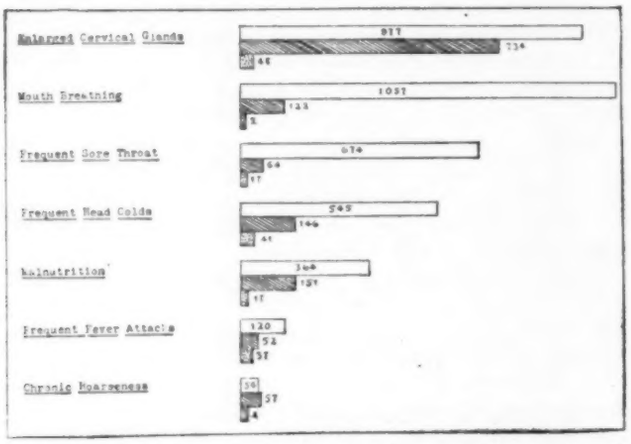

Chart 1.—Complaints of 1,200 children before and after operation. In Charts 1 and 2, the white areas indicate before operation; shaded areas, after operation; stippled areas, occurring for first time after operation.

children became mouth breathers for the first time following the operation. This complaint was relieved in 88.5 per cent. of the children. Fifty-four of these children showed incomplete removal of the adenoid tissue, which may account for the failure to get relief in some of these children.

A history of frequent sore throat occurred in 674 children, or more than half of the group, studied before operation. During the last three years, sixty-four children have had this complaint, and seventeen children have been subject, for the first time, to frequent sore throats since operation. Ten per cent. of those complaining of this symptom failed to get relief from the

TABLE 1.—*Status of Cervical Glands Before and Three Years After Operation*

	Before Operation		Three Years After Operation	
	Number	Per Cent.	Number	Per Cent.
Cervical glands not enlarged.....	223	18.5	466	39.0
Cervical glands moderately enlarged...	798	66.5	680	56.5
Cervical glands considerably enlarged.	179	15.0	54	4.5

operation. One year after operation, only 5 per cent. complained of frequent sore throat. During the last two years, however, frequent sore throats returned to 5 per cent. additional of the children operated on.

Frequent head colds were complained of by nearly half the children in this group previous to operation. During the last three years, 146, or 27 per cent., were still subject to frequent head colds, and forty-one were having this infection for the first time since operation. The incidence of frequent head colds during the first year after operation had been reduced to 8 per cent., as against 27 per cent. at the end of the third year. This illustrates the unreliability of drawing conclusions too soon after operation.

Frequent attacks of unexplained fever are given as a definite complaint before operation in 120, or 10 per cent., of the children operated on. No reason for these repeated attacks was ascertained, but it is assumed that tonsillitis may have been the cause in many instances. Forty-three per cent. of these children three years after operation still complained of such attacks. As there was a lessened incidence of sore throats after tonsillectomy, these frequent fever attacks are probably, in many instances, due to conditions other than trouble in the throat.

Chronic hoarseness existed in fifty-four of the children before operation, and in fifty-seven, three years later; of this number, four children showed this symptom for the first time after tonsillectomy. Obviously, the operation had little influence on this complaint.

The relationship that exists between enlarged cervical glands and diseased tonsils has not been definitely established. Other factors were taken into consideration, such as infected teeth and ears, and skin infections. For convenience, three classifications were made of the cervical glands: (1) those in which no glands were felt or the glands were palpable but small enough not to be considered of any significance; (2) those in which there was a definite enlargement on palpation; (3) those in which the glands were visibly enlarged. In this group of 1,200 children, 18.5 per cent. showed no evidence of glandular enlargement before operation; 66.5 per cent. showed moderate enlargement of the glands, and 15 per cent. showed considerable enlargement. Three years after operation, 39 per cent. of the children showed no evidence of any glandular enlargement; 56 per cent. had moderately enlarged glands, and 4.5 per cent. had glands considerably enlarged. After one year, there was practically no change in the incidence of glandular enlarge-

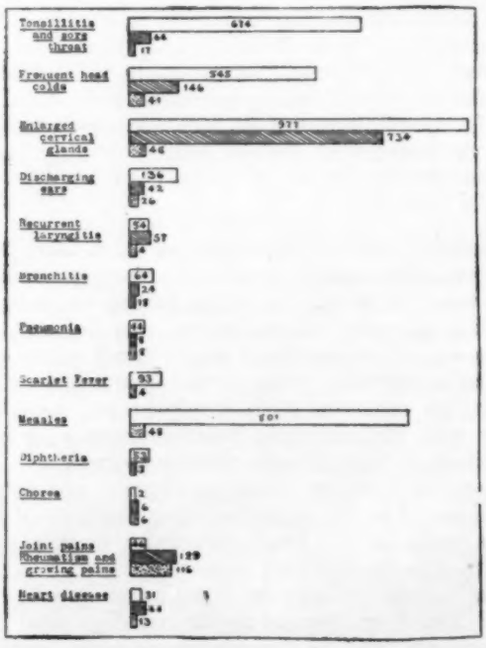

Chart 2.—Incidence of infection in 1,200 children before and three years after tonsillectomy.

ment. A difference of only 1 per cent. was noted. After three years, there was a difference of 21 per cent. It seems fair to conclude that considerable time must elapse after tonsillectomy before any great change takes place in the glands. After operation, forty-eight children in whom there had been no evidence of such enlargement before operation developed enlarged cervical glands.

The state of nutrition should be a guide to the value of the operation to a child. At the time of the operation, 30 per cent. of the children were termed underweight. The weights and measurements were based on Emerson's table for height and weight. At the time of reexamination, three years after operation, 12.5 per cent. of the children were 7 per cent. or more underweight, which represents a very definite improvement in the nutritional status of these children.

Has tonsillectomy had any bearing on the incidence of infection both local and general? As stated before, the incidence of sore throat was materially reduced dur-

TABLE 2.—*Nutritional Status of Children at Time of Operation and Three Years After Operation*

	Before Operation		Three Years After Operation	
	Number	Per Cent.	Number	Per Cent.
Underweight (more than 7 per cent.)..	364	30.0	151	12.5
Normal and overweight.....	836	70.0	1,049	87.5

ing the three year period following operation. Only 10 per cent. of the children subject to tonsillitis failed to get relief from the operation.

Discharging ears, either acute or chronic had existed in 136 out of the 1,200 children operated on before the time of operation. During the three years subsequent to the operation, forty-two children had a similar complaint. Of this number, twenty-six had discharging ears for the first time after their tonsillectomy.

At the time of operation, it was learned that sixty-nine children gave a history of repeated attacks of bronchitis. The incidence of this infection during the three years following operation was twenty-four cases, of which eighteen of the patients had had repeated attacks since the operation and had never had any before.

Pneumonia had existed in forty-four of the children previous to operation, and eight cases had been reported in this group since operation.

Before operation, ninety-three children had had scarlet fever. Within the last three years, four cases of scarlet fever developed.

Measles had infected 800 children before operation, so a high incidence would not be expected after operation. Forty-eight children contracted measles after the operation.

Before the operation, fifty-three children were reported to have had diphtheria. During the last three years, three cases developed.

Chorea had existed in two children previous to operation. During the last three years, six cases had developed in the children operated on.

A history of joint pains, growing pains and rheumatism was obtained from forty-six children previous to operation. Three years later, 129 had similar complaints, and of this number 116 had their first attack of rheumatism after the operation.

Cardiac disease was found to be present in thirty-one of the 1,200 children operated on. This was based on physical examination and not on history. Three years later, examination of the same group revealed evidence of cardiac disease in forty-four children, showing thirteen new cases in tonsillectomized children.

It would seem from these figures that, subsequent to the operation, the incidence of most infections had been lessened during the three-year period.

Conceding a definite improvement in these children who had been operated on, in fairness to the child not operated on, a comparative study must be made before making a final statement. It must be remembered that the children not operated on were candidates for operation three years ago, but for various reasons were not operated on. The control group of 1,200 children was examined by the same physicians, at the same time of the year, and represented children in the same social status as the group operated on. Application to the child not operated on, of the same tests that have been reviewed in the tonsillectomized child brings out the facts presented in Chart 3.

Mouth breathing was complained of by 69 per cent. of the children not operated on at the time of reexamination, while 11 per cent. of the children operated on were still mouth breathers, although before operation 88 per cent. were classed as mouth breathers. It was found that more than half of the unrelieved children that had been operated on had a definite nasal obstruction. Removal of tonsils and adenoids assures relief from this complaint in a high percentage of cases, but nasal obstructions must not be overlooked as a cause of mouth breathing.

Tonsillitis and sore throat were among the most common infections before operation. In the group not operated on, the incidence was about the same. However, during the three-year period following operation, the incidence had been greatly decreased. Of the 1,200 children not operated on, 677 complained of frequent attacks of sore throat, as against sixty-four of the tonsillectomized children. Obviously, the incidence of this common infection is favorably influenced by tonsillectomy.

Frequent head colds were reported in 614 of the children not operated on. In the same number of children operated on, 146 were still subject to frequent head colds. The incidence of head colds is by no means eliminated by a tonsil and adenoid removal, but about two thirds of the children have had relief from this infection subsequent to operation. Removal of adenoids

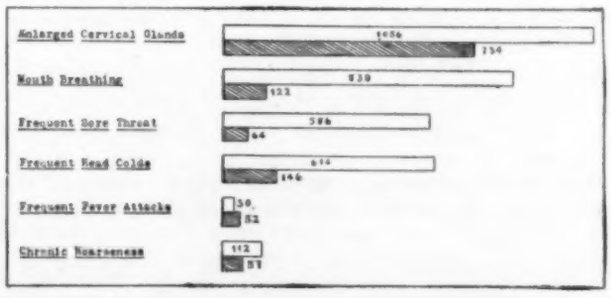

Chart 3.—Comparative status of symptoms in children operated on and not operated on. In Charts 3 and 4, white areas indicate not operated on; shaded areas, operated on.

is probably the big factor in reducing the incidence of this infection.

Repeated attacks of hoarseness have been said to follow tonsillectomy at times. In the group operated on, fifty-seven children complained of these attacks, while the control group had 112 children subject to frequent attacks. Only four children operated on developed these attacks subsequent to the operation. Apparently, the operation has little or no effect on the relief or causation of this symptom.

Enlarged cervical glands were found in 1,056 of the 1,200 control children. This infection is dependent on the season, but as the two groups were examined during

the same months, the comparison is reliable. Among this large number of children with palpable glands, 158 showed glands considerably enlarged. At the time of operation, 179 of the children operated on had large cervical glands. The operation has reduced this number to fifty-four, as against 158 in the group not operated on. Conditions other than infected tonsils might cause

TABLE 3.—*Comparative Status of Cervical Glands of Twelve Hundred Children Operated on and the Same Number Not Operated on*

	Operated On		Not Operated On	
	Number	Per Cent.	Number	Per Cent
Cervical glands not enlarged.....	466	39.0	144	12.5
Cervical glands moderately enlarged...	680	56.5	898	74.0
Cervical glands considerably enlarged.	54	4.5	158	13.5

swollen glands. The teeth of the group not operated on were found to be in as good condition as those of the tonsillectomized children. Infected teeth were, however, responsible for enlarged glands in both groups. The high incidence of swollen glands in the two groups would seem to indicate that a tonsillectomy does not prevent the swelling of the glands, and that they do not rapidly subside after tonsillectomy. But there is, definitely, a lessened incidence in the group operated on that suggests that a certain percentage of children with enlarged glands are infected through the tonsils.

Discharging ears were found to have existed in seventy-five of the control children and in forty of the children operated on. However, before operation, 136 children suffered from discharging ears. Undoubtedly, a number of ear patients were definitely benefited by the operation. The tonsillectomized child is not immune to ear trouble, although the chance of having infected ears is somewhat lessened.

Infections of the respiratory tract were little influenced by the operation. Recurrent attacks of laryngitis were not affected by the operation. Bronchitis occurred in fewer of the children not operated on than in the group operated on. The same is true of pneumonia. Pulmonary infections do not appear to be influenced by tonsillectomy.

Scarlet fever was reported in an equal number in the two groups, although in the group operated on only four children had developed the disease since the operation.

Measles was found to have existed in more of the group operated on than of the children not operated

TABLE 4.—*Nutritional Status of Children Not Operated on Three Years Ago and at Present*

	1921		1924	
	Number	Per Cent.	Number	Per Cent.
Underweight (more than 7 per cent.)..	323	28	245	21
Normal or overweight.....	815	72	893	79

on. Removal of the tonsils confers no immunity to this infection.

Diphtheria was reported in eighty-three children not operated on and in fifty-six operated on. Only three cases had occurred since the operation. It would seem that the tonsillectomized child is less likely to develop this disease.

Much is hoped for from tonsillectomy in reducing the incidence of the so-called rheumatic syndrome. Chorea existed in seven control cases and in eight patients operated on. In six of the patients operated on, chorea developed subsequent to tonsillectomy.

A history of rheumatism, joint pains or growing pains was obtained in 128 children not operated on, and in 129 operated on. Of the group operated on, 116 developed their trouble after the removal of the tonsils. It would seem that tonsillectomy offers no great assurance that chorea and rheumatism can be prevented.

Among the 1,200 control cases were found fifty-two children who showed evidence of heart disease, while in the group operated on there were forty-four cases with evidence of cardiac disease, thirty-one of which existed before operation. Only thirteen children developed heart disease after the operation. With the decided lower incidence of sore throat in the group operated on, it is hoped that cardiac disease also will be less likely to develop in these children as years go on.

An important effect of the operation is the one bearing on the general nutrition of the child as indicated

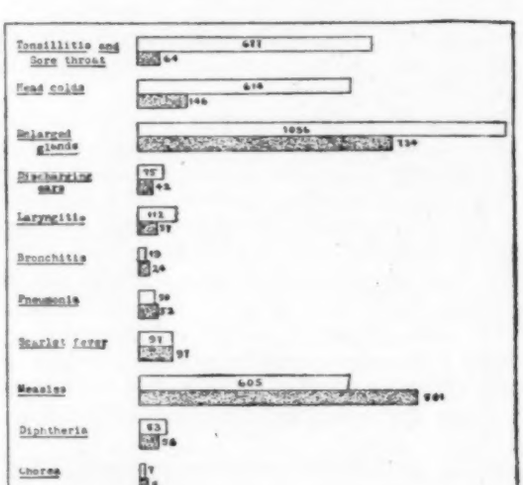

Chart 4.—Incidence of infection in 1,200 tonsillectomized children and the same number not operated on.

by the weight before and after operation and as compared to the child not operated on during the same period.

The weight and height of each child has been recorded at the time of operation. The control subjects were weighed and measured at the same time. The weights taken three years later in both groups were approximately in the same season of the year. Children were considered underweight if according to the table based on the height-weight relationship they were more than 7 per cent. underweight. There may be some question as to the method of computing these weights, but the two groups received the same test.

The group operated on with 30 per cent. of the children 7 per cent. or more underweight reduced the percentage of malnutrition three years after the operation to 12.5 per cent. The control group three years ago showed that 28 per cent. of the children were malnourished, with a reduction in three years to 21 per cent.

The tonsillectomized children reduced malnutrition 17.5 per cent., while the control group reduced it only 7 per cent. Obviously, the tonsillectomized child has a

slight advantage nutritionally, though malnutrition is by no means eradicated by performing a tonsillectomy on a child.

Contrasting other conditions in the two groups, one is impressed with the high incidence of nasal discharge, 45 per cent. in the children not operated on as against 5 per cent. in the children operated on. The thyroid

TABLE 5.—*Nutritional Status of Children Operated on and Children Not Operated on*

	Operated On, per Cent.	Not Operated On, per Cent.
Underweight (more than 7 per cent.)..	12.5	21
Normal and overweight.....	87.5	79

gland was palpable in 263 control children and in 181 children operated on, while it was definitely enlarged in twenty-eight control children and in only eight operated on. Abnormalities in the lungs were found equally in the two groups.

A higher percentage of children operated on reported having a good appetite than children not operated on.

No reliable information was obtained as to the mental status of these children.

CONCLUSIONS

After a review of these data, one can attempt to draw some conclusions as to the value of tonsillectomy, but must not be unmindful of the dangers of the surgical procedure as well as the complications that do occur. One is at once impressed with the absence of any spectacular results when a group is studied controlled by a group not operated on. The striking improvement that is often witnessed in a child's general health following this operation fails to be so evident in a group in which selection is not made.

The desirability and justification of this operation depend on the ultimate effect on the child. Many years must elapse before the ultimate effect can be determined; but, after a period of three years, a group of 1,200 children operated on compared to an equal number of similar children in whom operation was denied leads one to conclude that:

1. Tonsillectomy offers a child considerable relief from such common complaints as sore throat, head colds and mouth breathing.

2. It lessens the chances of having discharging ears and their complications.

3. It assures some protection against glandular infection, but is no guarantee against it, and it does not assure the immediate disappearance of large cervical glands.

4. It does not influence favorably or unfavorably infections of the larynx, bronchi and lungs, as they occur equally in the two groups.

5. It does not prevent scarlet fever or measles, but may influence the severity of the infections.

6. It seems to lessen the incidence of diphtheria by removing fertile soil for the diphtheria bacillus.

7. It has not influenced the incidence of chorea or rheumatism.

8. It has shown a lessened incidence of heart disease over a period of three years.

9. It has definitely reduced malnutrition in the group operated on as compared to the group that was not operated on.

29 Buckhingham Street.

ABSTRACT OF DISCUSSION

DR. EDWIN S. INGERSOLL, Rochester, N. Y.: For a long time otolaryngologists have been looking for some scientific data on which to base an opinion for operating on these children, but we have received very little information, although we have had clinical convictions as the result of experience. Dr. Kaiser's work gives us the best data, up to this time, on which to base an opinion. There has been no doubt in our minds as to extreme cases with marked obstruction to the respiratory tract; but it is in the questionable cases, occurring in children of poor nutrition and generally below par, that we have had great difficulty in reaching a decision in regard to the operation. Most of us have erred in taking out more tonsils than we should, and thereby have brought a good operation into bad repute. We have a survey of the schools of Rochester, and as a result a tremendous number of children have been operated on. Outside of the regular clinic we had 1,200 children taken care of on the skin service. The next year a municipal building was rebuilt for the purpose, and we then had a complete hospital for this type of work. The community chest of the Rochester charitable organizations financed the work. In a rebuilt convention hall we treated 8,000 children in fourteen weeks, approximately 100 children a day. The work was done by the Beck method. As a result, we have most of the statistics that Dr. Kaiser worked on. We have now begun a further examination in connection with the controls; that is, the children who should have been operated on. We have these children listed and checked up against the children operated on. This work is to go on for several years. When we have studied 1,500 cases, we shall have some definite information, instead of the desultory information we have at present.

DR. WILLIAM C. BLACK, St. Louis: Tonsillectomy needs no defense. Dr. Kaiser's paper is a timely one. There is no question that some tonsils are removed without proper indications; but, if we err in taking out tonsils not diseased at times, I believe we err on the right side. There is no procedure that gives such good results as a complete tonsillectomy. The average laryngologist does not want to do tonsillectomies. He much prefers to do a mastoid operation or brain surgery. Tonsillectomy is a procedure for the general practitioner, but unfortunately he does not know how to do it. Statistics on 2,000 or 3,000 cases do not mean anything. This is an operation that has been done for years. Even if it was done half way years ago, there must have been continued necessity for it, for it has been done from year to year. Let us consider the statistics given here. First as to sore throat: Tonsillectomy does prevent tonsillitis, but it does not prevent sore throat. There is still mucous membrane left after tonsillectomy which can become thickened, as can mucous membrane anywhere else. Tonsils and adenoids are not the cause of all mouth breathing. Malocclusion and deflected septum may cause mouth breathing. Mackenzie states that 80 per cent. of mitral valve disease is the result of tonsillar infection by the rheumatic route. If every child's tonsils were removed, I think we should have fewer infections and fewer deaths from cardiac complication. This is the principal cause for cardiac complications, and many cases of rheumatism can be cured by removing the tonsils. We can never cure valvular disease of the heart, because that is impossible.

DR. ALBERT D. KAISER, Rochester, N. Y.: I should like to emphasize the important point that results would be better if the laryngologist would analyze his own cases. If we had picked out the really bad cases we should have shown better results. The trend today is to operate on every child who comes to the physician's office. These cases are not as striking as the cases of laryngologists. I think this is like any other public health procedure—no one thing is of universal benefit, but each factor makes a difference. I think we believe that tonsillectomy will prevent rheumatism, chorea and heart disease. In our group we had chorea and rheumatism and thirteen new cases of heart disease. The incidence was lessened, but we cannot give assurance that tonsillectomy will prevent heart disease. I do not think that tonsillitis is the only cause for rheumatism, chorea and heart disease.

THIOSINAMIN IN THE TREATMENT OF ARSPHENAMIN DERMATITIS*

SIGMUND S. GREENBAUM, M.D.
PHILADELPHIA

Although the incidence of reactions following arsphenamin medication has been greatly reduced since governmental toxicity control tests have been instituted, as well as generalization of the precautionary knowledge requisite to the injection of an arsphenamin, they still occur, despite the utmost precaution and attention to detail. Even the introduction of arsphenamins suitable for intramuscular use does not obviate their tendency to develop; indeed, the incidence of dermatitis appears to be even greater with certain of these.

One of the commonest untoward reactions following arsphenamin therapy is dermatitis. An effective agent for rapidly inhibiting the progress of an arsphenamin dermatitis has long been desired, particularly of the insidious types that may end fatally.

Until recently, arsphenamin dermatitis was treated more or less symptomatically. In 1920, Ravaut [1] observed that sodium thiosulphate appeared to exert a curative effect on experimental arsphenamin intoxication in rabbits, and that in the human subject it tended to shorten the course of an arsphenamin dermatitis. Studies by Kolmer and myself [2] and by Voegtlin [3] do not confirm the experimental observations of Ravaut. Although sodium thiosulphate has appeared to be of some value clinically in my experience and in the experience of others, it has not proved entirely satisfactory. It should be stated, however, that excellent clinical results have been obtained with it by McBride and Dennie,[4] Stokes,[5] Sutton,[6] Miller,[7] and Hoffman and Schrous.[8]

The variability, as to duration and ultimate severity, of any dermatitis due to drugs is well known, so that not only is it impossible to foretell, in many instances, the duration and severity that an arsphenamin dermatitis will pursue, but as a corollary, it becomes correspondingly difficult to evaluate the effects of antidotal substances. An eruption that has all the appearances of progressing into a severe, even exfoliative, dermatitis, may rapidly clear up with symptomatic treatment alone. On the other hand, there are others with but an inauspicious onset which eventually terminate in a widespread cutaneous inflammation. Circumstances may arise, however, when it seems definitely assured that, with further arsphenamin medication, a very severe dermatitis (Case 1) will develop; and in instances such as these, a more definite opinion may be expressed of the value of the antidotal substances used.

* Read in part before the Philadelphia County Medical Society, May 14, 1924.

* From the Research Institute of Cutaneous Medicine and the department of dermatology-syphilology, University of Pennsylvania Graduate School of Medicine, clinic of Dr. J. Frank Schamberg.

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8. Hoffman, E., and Schrous, T.: Sodium Thiosulphate as Curative Agent in Arsenobenzene and Mercury Dermatitis, München. med. Wchnschr. **70:** 1481 (Dec. 14) 1923.

MODUS OPERANDI OF SULPHUR AND SULPHYDRYL COMPOUNDS

The use of sulphur compounds as arsphenamin detoxifiers is based on the chemical fact that certain nonmetallic substances, under given conditions, precipitate certain metals. For example, Hunt [9] has experimentally shown that sodium hydrosulphite (often used as the reducing agent in the manufacture of the arsphenamins) immediately diminishes the toxicity of arsphenamin solutions containing arsenoxid. Concerning sodium thiosulphate, its use is based on the fact that, of the sulphur compounds, it is one that has great solubility and but slight toxicity.

In an interesting experimental study on the mechanism of the action of arsenic on protoplasm, Voegtlin observed that certain sulphydryl (SH) compounds appeared to possess definite detoxifying effects on arsenoxid. Sodium thiosulphate does not belong to the sulphydryl compounds, however. The theory evolved by Voegtlin is that the SH radicals of these compounds replace those SH radicals which have been removed from the protoplasm of the cell by the arsenoxid, which is a partial oxidation product of an arsphenamin and the substance believed to be directly toxic to the cell. If those SH radicals are given back to the cell as rapidly as arsenoxid removes them from the cell, neutralizing effects result. Using arsenoxid intravenously, Voegtlin demonstrated antagonism between this substance and SH compounds. When an SH compound is injected into the blood, it rapidly disappears from this medium, indicating the necessity for constantly resupplying it in order to obtain ultimate neutralization of all the arsenoxid.

If sylphydryl compounds are to be used clinically, several facts must be kept in mind: antidoting the effects of an arsphenamin before its administration is to lose its spirocheticidal value; and if toxic effects develop after the administration of an arsphenamin, only detoxifying effects can result from a regular, persistent administration of the antidote. It should be added that our own experimental studies indicate a high irritating effect of sulphydryl compounds (such as sodium thiosalicylate and sodium thioacetate) given intravenously.

Although thiosinamin is not a sulphydryl compound per se, it may be considered, in chemical parlance, a substitute sulphydryl compound. Chemically, it may be said that the sulphur in thiosinamin is not as tightly bound as is the sulphur in sodium thiosulphate. Thiosinamin shows a high degree of tolerance both experimentally and clinically. Not only is it very soluble (two parts of water) and nontoxic in therapeutic dosage, but its action given intravenously is very rapid, as is shown by the appearance of the odor of ethyl sulphid [10] in the expired air and noted immediately after the injection by the patient. Our method is to put the drug up in ampules containing three grains of the drug dissolved in 6 c.c. of distilled water, to which is added 1 or 2 drops of a 2 per cent solution of glycerin, which insures permanent dissolution. The ampules are sterilized in the autoclave.

REPORT OF CASES

Case 1.—*Severe neo-arsphenamin dermatitis.* A white man, aged 24, with secondary syphilis, received ten injections of neo-arsphenamin, each 0.9 gm., at weekly intervals. Four or five days after the ninth injection, he developed a moderately marked generalized pruritus. Desirous of further treatment

9. Hunt, Reid: Some Factors Relating to the Toxic Action of Arsphenamin, J. A. M. A. **76:** 854 (March 26) 1921.
10. Dutton, W. F.: Intravenous Therapy, Philadelphia, F. A. Davis Company, 1923, p. 335.

and anxious to be cured as soon as possible, he concealed from his physician the fact that he had pruritus. Forty-eight hours after the tenth injection, there developed facial edema severe enough almost to close the eyes; facial erythema, and a generalized dull red, angry erythematous rash; slight edema of the hands, and an intermittent but marked pruritus. He reported back to the clinic the fourth day after his injection, with the symptoms already noted, which, he stated, had become progressively worse since the onset. Daily intravenous injections of thiosinamin were begun. There was a perceptible improvement within twenty-four hours; the rash and edema were perceptibly improved, and slight desquamation was apparent on the face. By the fifth injection, he was subjectively in excellent condition. There had been almost complete disappearance of the pruritus twenty-four hours after the first injection. On the seventh day, the general impression was that without the use of the thiosinamin and with a skin condition such as was present, there would ordinarily be very marked pruritus.

In eleven days, the patient was normal except for slight desquamation, which continued for about ten more days. There was complete clinical cure, therefore, in less than two weeks.

CASE 2.—*Hemorrhagic scarlatinal neo-arsphenamin rash.* A white man, aged 23, with a chancre of ten days' duration (positive dark-field) and, as yet, a negative complement fixation test for syphilis (Kolmer method), received four maximum doses (0.9 gm.) of neo-arsphenamin. The first two doses were given twenty-four hours apart; thirty-six and seventy-two hours after the second, he received his third and fourth dose, respectively. The first three doses were perfectly tolerated. Twenty-four hours after the fourth injection, he developed fever (102, which reached 104 F. the following day), nausea, vomiting, general pains, suffusion of the face and conjunctiva, and slight erythema of the upper chest. He was given sodium thiosulphate, 1 gm. four times daily, by mouth. At the end of forty-eight hours of this type of medication, he had become very much worse. The erythematous rash had become morbilliform, then scarlatiniform and hemorrhagic; it had spread over the face, neck, trunk, upper extremities and thighs. The temperature was 104; the face was edematous, and about one-third again its normal size; the eyes were congested and there was constant nausea, retching and vomiting. At this time, the evening of the third day, Jan. 3, 1924, he was brought to the hospital and was then given 3 grains (0.2 gm.) of thiosinamin intravenously. He complained of a very nauseating smell.

January 4, the temperature was 103; the face was swollen; there was a generalized erythematous maculopapular hemorrhagic eruption on the face, neck, chest, abdomen and upper part of the thighs; the patient felt nauseated, and vomited occasionally. Thiosinamin was given; he complained again of the nauseating smell. The conjunctiva was still congested and apparently icteroid; bile and albumin were found in the urine. The phenoltetrachlorphthalein liver test yielded 3 per cent. in fifteen minutes, 5 per cent. in one hour, and complete elimination in two hours.

January 5, the facial edema was much better; there was objective improvement in the appearance of the rash, which had not extended below the previous lines. The temperature was 101.4. The patient was still nauseated, but felt somewhat better. Thiosinamin, 3 grains (0.2 gm), was given intravenously

January 6, the facial edema was gone; the urine was clear; the eruption was much fainter; beginning desquamation had set in; the conjunctiva was still congested; the patient felt very much better. The temperature was 100. Thiosinamin, 3 grains (0.2 gm.), was given intravenously.

January 7, the face was normal except for a slight redness round the eyelids; the conjunctival congestion had almost gone; the eruption was about the same except that the desquamation had increased; the temperature was 100. Thiosinamin was given intravenously.

January 8, no eruption was present; there was slight desquamation; there was slight discoloration of the skin, the result of the purpuric associations; the patient felt fine but weak, as though recovering from a long illness; the temperature was 99.

January 9, the skin pigmentation from the purpura was rapidly disappearing; desquamation was slight; the temperature was normal. The patient was up and about.

January 10, he was discharged in excellent condition, but weak. Complete clinical cure had occurred in one week.

CASE 3.—*Neo-arsphenamin lichenoid eruption limited to the forearms and hands.* The trouble, of one week's duration, caused itching so intense as to keep the patient awake at night. She was given 3 grains (0.2 gm) of thiosinamin intravenously. When seen two days later, she stated that the itching had practically disappeared seven or eight hours after the injection of thiosinamin; she had slept well the night of the injection. The lichenoid eruption began to disappear by the third injection, and by the tenth day had left only pigmented remains.

CASES 4, 5 and 6.—Three patients with neo-arsphenamin dermatitis, received injections, close together, of the same manufacturing series of neo-arsphenamin, each dose being 0.45 gm. From one half to one hour after the injection, all three patients developed dizziness, nausea, vomiting and general distress, which continued the entire night. They were seen the following morning.

Patient 4, a white woman with primary syphilis, continued to vomit; she had dimness of vision, abdominal colic and diarrhea, and a profuse morbilliform rash over the upper part of the body; there was swelling of the face and lips and, as a result of the swelling of the tongue, the patient was not able to speak distinctly; the temperature was 102. Three grains (0.2 gm.) of thiosinamin was given intravenously, and continued daily for seven days. Within twenty-four hours, the rash had decreased to the extent of fully 50 per cent.; nausea and vomiting had ceased; itching, which had been very marked, had practically disappeared. By the third injection, the rash and itching had disappeared, as had all other symptoms, and the temperature was normal.

Patient 5, a white man with tertiary syphilis, developed a diffuse, circumscribed rash, hemorrhagic in character; there was marked generalized itching, with swelling of the face and hands; the temperature was 101. Vomiting had ceased. Three grains (0.2 gm.) of thiosinamin was given intravenously and continued daily for one week. The rash had decreased in intensity over 50 per cent., and itching had markedly improved by the second injection, at which time the patient was well enough to go out.

Patient 6, a white man with tertiary syphilis, gave a milder reaction than the other two; there was a diffuse scarlatinal rash; the general symptoms were not so marked, and the pruritus was not so severe as in the others. The same treatment was given over a period of seven days. The rash disappeared after the second day. The general impression of the therapeutic value of thiosinamin in arsphenamin dermatitis was excellent.

CASE 7.—A white man, a patient of Dr. J. V. Klauder, seen, March 26, 1924, had received three injections of neo-arsphenamin at weekly intervals. The third injection was given, March 24, and the following morning the patient developed a generalized erythematous eruption, with itching and edema of the face; there was no fever and no gastro-intestinal disturbance. When first seen, the edema had slightly decreased, as had the pruritus; but the patient presented a generalized macular eruption. Thiosinamin was given intravenously in 3 grain (0.2 gm.) doses daily. The first dose was followed by marked improvement within twenty-four hours. This was progressive, and symptoms rapidly disappeared under further administration of the thiosinamin.

CONCLUSIONS

I have reported only a few illustrative cases from my records of patients treated with thiosinamin for mild and moderate arsphenamin dermatitis. None of my patients, since I began the use of thiosinamin, have developed the severe edematous type of dermatitis occasionally seen. The apparently excellent clinical results obtained in other patients not included in the foregoing list, as well as the results obtained by others who were asked to use thiosinamin, justifies wider use of this substance. It appears to inhibit definitely the progress

of an arsphenamin dermatitis. The rapidity with which there was clinical improvement in as severe an intoxication as Case 1 appeared to be, and the promptness with which itching disappeared in Case 3, seemed extraordinary.

It is hoped that a wider application of this means of not only controlling the progress but also curing arsphenamin dermatitis will evolve a more definite therapeutic status for it.

1714 Pine Street.

Clinical Notes, Suggestions, and New Instruments

TUBERCULOSIS OF SPLEEN WITH POLYCYTHEMIA AND SPLENOMEGALY IMPROVED BY TREATMENT WITH RADIUM AND BENZENE

GEORGE DOUGLAS HEAD, M.D., MINNEAPOLIS

An opportunity to observe the effect of radium exposures over the spleen in a case of polycythemia and splenomegaly over a series of years in repeated exacerbations of the disease does not often present itself. The case reported here was observed from Jan. 26, 1917, to Sept. 10, 1923, in four distinct attacks, during which the polycythemic state became much aggravated. In three of these exacerbations, radium exposures over the spleen with or without the administration of benzene produced a profound improvement in the blood within three months following the use of the radium. The case is reported for this reason and its scientific importance.

History.—Mrs. V., aged 49, mother of four children, two living and two that died at delivery (twins), was examined, Jan. 26, 1917. Her mother had died of carcinoma of the stomach, and one sister had died of carcinoma of the uterus; two sisters were living and well. At the age of 3 years the patient was said to have had "water diabetes," and at 18 had typhoid fever. Twelve years before the present illness, the patient gave birth to twins and was anemic for some time thereafter. Six years before, she was operated on for appendicitis. For the past five or six years she had occasionally taken antikamnia (an acetanilid mixture) for headache. The last week she had taken one tablet a day, although as a rule she had taken one or two a month, depending on the frequency of the headaches. The patient passed through the menopause six years before. The patient's present illness was found to date back about three years. She then began to have attacks described as a feeling of tightness in the epigastrium. These attacks came on only during the daytime, without warning, and lasted about five minutes. There was no real pain connected with them. During the attacks she had excessive salivation, and occasionally vomited, but suffered no nausea. At first the attacks came only about once a month, but had been increasing in frequency, so that now they came as often as three times a day, especially when she was under nervous strain. The attacks had no relation to the taking of food. They were, however, relieved somewhat by taking soda. For the past two years, the patient had tired rather easily and recently had had dizzy spells late in the afternoon. She had had headaches nearly every morning on awakening, but these had passed off after she ate breakfast. Had one slight attack of epistaxis recently. The patient stated that her appetite was poor, and that she slept poorly. She had lost 18 pounds (8 kg.) in the last six months. She had never vomited blood. People had noticed a redness of her face for about two years past. This was more marked under exertion, but never entirely subsided.

Physical Examination.—The patient was short and slim, and had light hair and eyes. The pupils reacted to light and in accommodation. The knee jerks were present. There was no nystagmus, no von Graefe's sign, no tremor of the finger tips, no enlargement of the lymph glands, and no tenderness or roughness of the bones. One was struck at once by the deep red of the patient's skin and mucous membranes. The face, forehead and neck showed a high, dark red, while the fingers showed a bluish tinge. The lips and alae of the nose also were bluish. The tongue was deep red and showed many bluish veins on its under surface. The back of the throat was markedly congested and covered with dilated venules. The inside of the lips and cheeks showed the same deep congested color. The eyes looked inflamed, and the lids showed congestion of the conjunctivae with small, prominent blood vessels over the sclera.

A careful physical examination was negative for organic disease aside from the enlarged spleen, the polycythemia and the hypertension. The spleen could be felt two finger breadths below the costal margin. Its edge was hard and firm, and its surface smooth. Percussion showed an enlarged area of splenic dulness. The blood examination revealed: hemoglobin, 140 per cent.; red blood corpuscles, 8,760,000; white blood corpuscles, 13,500; differential count: polymorphonuclears, 77; large mononuclears, 4; small mononuclears, 12.5; transitionals, 3; eosinophils, 3; basophils, 0.5; myelocytes, 0. The red blood corpuscles appeared normal in the stained smear. The blood pressure was 208 systolic and 110 diastolic. The heart was normal. The liver was not enlarged. The Pirquet tuberculin test was positive. The urine examination showed a trace of albumin and, microscopically, a few fresh red blood corpuscles as well as numerous leukocytes. A second blood examination, made one week later, showed hemoglobin 142 per cent., red blood corpuscles 8,670,000. The test for fragility of the red blood cells was negative. The phenolsulphonephthalein test was normal. The occult blood test for stools was negative.

Five days after coming under observation, the patient was given 3 mg. of Koch's old tuberculin for diagnostic purposes. She gave a strong positive reaction, the temperature rising to 100.4 within twenty-two hours following the injection.

Treatment and Course.—All other findings being negative, a diagnosis of tuberculosis of the spleen, with polycythemia and hypertension, was made. The splenic area was exposed to 90 mg. of radium for twelve hours on two successive days. On the evening of the second day the patient vomited, and the skin over the exposed area became erythematous. The blood examination of the day of roentgen-ray exposure revealed: hemoglobin, 138 per cent.; red blood corpuscles, 8,600,000. Following roentgen-ray treatment, the patient was placed on benzene (C_6H_6), 5 grains (0.3 gm.), three times a day.

Seven weeks later the patient was seen again and reported that she had had a hemorrhage of about a cupful of blood from the bowels five weeks before. The examination of the blood made at that time showed: hemoglobin, 110 per cent.; red blood corpuscles, 8,650,000; white blood corpulscles, 7,300; differential count: polymorphonuclears, 81; large mononuclears, 1; small mononuclears, 16.5; transitionals, 0; eosinophils, 1.5; basophils, 0; myelocytes, 0. The patient's color was much improved. The blood pressure was 130 systolic and 90 diastolic. The spleen was not palpable, and was diminished in size to percussion. The patient had gained in weight.

Six months later the patient was again examined. At this time the color seemed higher. The lips looked a trifle bluer and the ears and cheeks a darker red. The patient reported that she had been feeling fine up to two or three weeks before, but since that time she had not felt so well. The physical examination showed the spleen again enlarged, with the border two finger breadths from the costal margin. The liver was palpable. The blood examination showed marked improvement: hemoglobin, 105 per cent.; red blood corpuscles, 6,230,000; white blood corpuscles, 12,800; differential count: polymorphonuclears, 75.5; large mononuclears, 3; small mononuclears, 15; transitionals, 2.5; eosinophils, 0; basophils, 0; myelocytes, 0. The blood pressure was 148 systolic, 88 diastolic.

The patient was examined again in November, 1919, nearly three years after coming under observation. She was feeling wonderfully well. The color was nearly normal. The spleen was no longer palpable at the costal margin. The patient had taken benzene from time to time. The blood examination showed: hemoglobin, 110 per cent.; red blood corpuscles, 6,975,000; white blood corpuscles, 10,750; differential leukocyte count: polymorphonuclears, 83.5; small mononuclears, 10.5; large mononuclears, 2.5; eosinophils, 1.5; transitionals, 1.5; basophils, 0.5; no nucleated red cells were seen. The blood pressure was 136 systolic, 82 diastolic.

In April, 1920, the patient returned again because of bleeding of the gums when cleaning her teeth. She lost a teaspoonful or so of blood during the brushing of the teeth. The patient otherwise was feeling well. The blood examination, however, showed more polycythemia: hemoglobin, 125 per cent.; red blood corpuscles, 7,360,000. The spleen was enlarged to percussion, but did not extend below the costal margin. The patient was given a second series of radium exposures over the spleen and advised to take benzene again.

In November, 1920, the patient again returned, showing a marked improvement. This was six months or so after the last radium treatment. The blood examination was: hemoglobin, 100 per cent.; red blood corpuscles, 5,680,000; white blood corpuscles, 17,000; differential count: polymorphonuclears, 79; small mononuclears, 11; large mononuclears, 5; transitionals, 2; eosinophils, 1; basophils, 2.

In May, 1921, the patient presented herself again, feeling much worse. Her face was a dark, suffused red, the conjunctiva very much injected and red. Her hands were dark, bluish red, and she presented all the appearance of having had another exacerbation of the disease. The spleen, however, could not be palpated below the costal margin. The blood pressure was 175 systolic and 90 diastolic. The blood examination showed: hemoglobin, 125 per cent.; red blood corpuscles, 7,760,000; white blood corpuscles, 14,000. The patient was again placed on benzene, but showed no improvement in the blood examination. In July, 1922, the blood showed a worse condition: hemoglobin, 133 per cent.; red cells, 9,190,000; leukocytes, 18,300. Radium over the spleen was again used, an application of 100 mg. for eight hours only, on account of irritability of the skin as a result of the previous exposures. The patient improved symptomatically, but no blood examinations were made prior to September, 1923, when she returned again in another exacerbation, with the hemoglobin at 150 per cent., the red cells 8,112,000, and the leukocytes 18,250. The differential count was: polymorphonuclears, 69; small mononuclears, 20; large mononuclears, 4.5; transitionals, 2; eosinophils, 1.5; basophils, 0.5; myelocytes, 2.5. At this time the spleen was again exposed to radium, 100 mg., over an eight hour period. No examinations of the blood were made following the last radium treatment.

506 Donaldson Building.

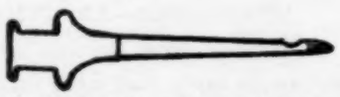
A LACRIMAL NEEDLE AND PUNCTUM DILATOR COMBINED *

ARTHUR S. TENNER, M.D., NEW YORK

I have used this needle for the last two months with such satisfaction that it has seemed to me worthy of publication of its merits.

It has a small, solid tip with a lateral fenestration 1.5 mm. back of the tip.

It is conical, increasing in diameter from about 22 gage at the tip to about 17 gage at the base. It is without any curve, and is about 2 cm. long.



Lacrimal needle and punctum dilator.

The material is sterling silver and is not affected by silver salts or iodin.

The hub has the regular standard Luer slip and can be used, therefore, with a Luer syringe of any size. It is advantageous, however, to use a well made syringe of domestic manufacture, such as a B-D Luer, for the reason that the imported syringes fit poorly, resulting either in leakage or in the needle's flying off during pressure.

The advantage of the small rounded tip is obvious. By its means the needle can enter any punctum lacrimale, no matter how small. As it passes along the canaliculus, its diameter increases on account of its conical shape, and, consequently, it not only dilates the punctum but fits it so snugly that there can be no return flow.

By means of the needle, one can dispense with the use of a punctum dilator in all cases except those in which the passage of large sounds is indicated. The irrigation of the lacrimal sac becomes such a simple one, when this needle is used, that I have extended its use beyond undoubted lacrimal sac infections and partial or total stenosis of the tear duct to other conditions, such as intractable conjunctivitis cases; in such cases, irrigation of the lacrimal sac has greatly facilitated the cure.

70 East Fifty-Sixth Street.

* Read before the Eye Section of the Academy of Medicine, New York, May 19, 1924.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

BENZYL FUMARATE-ABBOTT.—Benzylis Fumaras.—Dibenzyl Fumarate.—$C_6H_5CH_2.OOC.CH:CH.COO.CH_2C_6H_5$.—It contains not less than 99 per cent. of benzyl fumarate.

Actions and Uses.—Benzyl fumarate acts like benzyl benzoate and benzyl succinate in lowering the tone of unstriped muscle. Its "benzyl" content (63.6 per cent.) is practically the same as that of benzyl succinate (61 per cent.) but is higher than that of benzyl benzoate (48.4 per cent.). Benzyl fumarate, like benzyl succinate, has the advantage over benzyl benzoate that, because of its insolubility in water, it is practically tasteless and does not produce gastric disturbance. It is employed in the same conditions as benzyl benzoate and benzyl succinate (see New and Nonofficial Remedies, 1924, pp. 69-71).

Dosage.—From 0.3 to 1.3 Gm. (5 to 20 grains).

Manufactured by the Abbott Laboratories, Chicago. No U. S. patent or trademark.

Benzyl fumarate is a white, crystalline solid; odorless; almost tasteless. It is almost insoluble in water; soluble in alcohol, ether and chloroform; also soluble in the fixed and volatile oils. It melts at 58.5 to 59.5 C. The solution of benzyl fumarate in chloroform (1:25) should be clear and colorless.

Boil about 2 Gm. of benzyl fumarate with 30 Cc. of half-normal alcoholic sodium hydroxide in a reflux apparatus for 1 hour. Cool, filter, wash the precipitate with alcohol, dissolve the precipitate in the minimum quantity of warm water and acidify with concentrated hydrochloric acid. Recrystallize the residue once from a few Cc. of hot water. The crystals of fumaric acid sublime without melting at a temperature above 200 C. To the alcoholic filtrate from the sodium fumarate add 25 Cc. of water and boil until the alcohol is removed. Shake the alkaline solution twice with ether, using 10 Cc. each time, and evaporate these extractions. The residue has the odor of benzyl alcohol. Add about 1 Cc. of diluted sulphuric acid to 10 Cc. of tenth-normal potassium permanganate, add 0.1 Gm. of benzyl fumarate and warm the mixture. The odor of benzaldehyde becomes perceptible. Shake 1 Gm. of finely divided benzyl fumarate with 100 Cc. of water and filter. The filtrate should not be more than faintly acid to litmus paper and separate portions should not yield precipitates with barium chloride solution, silver nitrate solution or be colored violet by ferric chloride solution.

Incinerate about 1 Gm. of benzyl fumarate, accurately weighed. Not more than 0.1 per cent. of ash remains. Boil about 1 Gm. of benzyl fumarate, accurately weighed, for 1 hour in a reflux apparatus with 20 Cc. of half-normal alcoholic sodium hydroxide solution, cool the solution, add a few drops of phenolphthalein solution, and titrate with half-normal hydrochloric acid until the disappearance of the pink color. The amount of half-normal sodium hydroxide consumed corresponds to not less than 99 per cent. of benzyl fumarate.

SULPHARSPHENAMINE (See New and Nonofficial Remedies, 1924, p. 56).

Sulpharsphenamine-Metz.—A brand of sulpharsphenamine-N. N. R.

Manufactured by the H. A. Metz Laboratories, New York, under U. S. patent 1,024,993 (April 30, 1912; expires 1929) by license from The Chemical Foundation, Inc.

Sulpharsphenamine-Metz, 0.05 Gm. Ampules.
Sulpharsphenamine-Metz, 0.075 Gm. Ampules.
Sulpharsphenamine-Metz, 0.1 Gm. Ampules.
Sulpharsphenamine-Metz, 0.15 Gm. Ampules.
Sulpharsphenamine-Metz, 0.3 Gm. Ampules.
Sulpharsphenamine-Metz, 0.45 Gm. Ampules.
Sulpharsphenamine-Metz, 0.6 Gm. Ampules.

Maternal Mortality.—According to the Metropolitan Life Insurance Company there was a decline in the mortality rate from puerperal conditions among the industrial policyholders of the company in 1923. The death rate per hundred thousand for the year was 17.9 as compared with 19.0 in 1922 and 23.0 in 1920. With the single exception of the year 1916, when the rate touched 17.6, the 1923 figures were the lowest ever recorded among the industrial population.

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SATURDAY, JULY 5, 1924

ADJUSTMENTS OF THE HUMAN BODY TO MUSCULAR WORK

When the body is subjected to severe exercise in the form of muscular work, the distress that manifests itself as the activity proceeds vigorously may presently become less severe even while the effort is being continued. The dyspnea produced by strenuous exercise, such as running or rowing, may disappear if the work is continued, and it may be replaced by a sense of great relief. The urgency of breathlessness decreases with the oncoming of what the athlete calls his "second wind." The look of distress disappears from his face, the head becomes clearer, and the muscles seem to act with renewed vigor and elasticity. There are individual differences in the adjustment or accommodation that produces this change; in some persons the sensation of the relief of "second wind" is very definite, while in others it may be so indefinite that it remains unrecognized. The problem of muscular fitness is concerned with the physiologic mechanisms involved in the development of "second wind."

Obviously, the devices for the adequate removal of the products of muscular waste and the supply of essential oxygen are put under severe strain during strenuous exercise. It was suggested long ago that, as the result of the production of metabolites in the contracting muscles, their vessels may be more dilated so that the flow of blood through them is easier. Cook and Pembrey [1] believed that carbon dioxid was the chief factor in the adjustment of the respiratory and circulatory systems to the demands of the musculature for an adequate blood supply. In an extensive reinvestigation of the subject in the physiologic laboratory at Guy's Hospital,[2] London, it has become evident that in the dyspnea produced by running there is a disturbance of the acid-base equilibrium of the body; the relief of "second wind" is the result of the various adjustments toward equilibrium. This accommodation is effected chiefly by respiration, circulation and excretion by the kidneys and skin. The sense of discomfort during dyspnea is associated with increased pulmonary ventilation, the sense of relief at the onset of "second wind," with diminished ventilation. Since the days of Beaumont's observations on Alexis St. Martin, it has been known that the internal temperature of the body is raised by muscular work. The rise may proceed to 101 or 102 F. (38.3 to 38.9 C.). The London physiologists rate this as beneficial because the oxidation in the tissues is accelerated above the normal temperature, the excitability of the respiratory center is increased, the beat of the heart is quickened, and the gaseous exchange between blood and tissues proceeds more readily. They believe that distress during exercise is associated more closely with a high skin temperature than with the customary elevation of internal temperature; for the consequent dilatation of the cutaneous vessels makes an extra demand on the heart in order to maintain the usual pressure of the blood. The exposure of a large surface of the skin during muscular work facilitates the evaporation of sweat, which prevents the temperature from exceeding the optimum and causes constriction of the cutaneous blood vessels.

A marked decrease in the output of urine, even to the extent of anuria, is a characteristic feature of very vigorous exercise. It is suggested by these studies that the water spared is made available for excretion by the lungs and skin, and will produce by evaporation a far greater cooling than would result if it were discharged, as through the kidneys. The suspension of their activities is said to be due to constrictor impulses to the renal vessels. After strenuous exercise, protein sometimes appears in the urine of healthy persons. Perhaps this is a sign of the previous lack of arterial blood in the kidneys; if so, the muscles and nervous system benefit by their correspondingly increased supply. Dependable knowledge in this field of inquiry forms the very fundament of the physiology of exercise, for which the larger structure has only begun to be evolved.

1. Cook and Pembrey: J. Physiol. **45**: 429, 1913.
2. MacKeith, N. W.; Pembrey, M. S.; Spurrell, W. R.; Warner, E. C., and Westlake, H. J. W. J.: Observations on the Adjustment of the Human Body to Muscular Work, Proc. Roy. Soc. London, Sec. B **95**: 413 (Dec. 1) 1923.

SYNOSTOSIS—AN INHERITED DEFECT

Deviations from normal structure and function in the human body that were formerly ascribed somewhat indiscriminately to accident or injury have received a more adequate explanation in the light of increasing scientific knowledge. One may recall such metabolic anomalies as cystinuria, alkaptonuria and pentosuria—defects in the chemical processes of the organism that are apparently congenital in history and permanent during life. Also, morphologic deviations of a comparable sort are recognized. Polydactylism has long been familiar as an inherited phenomenon in man. There is no reason for assuming that congenital defects or deformations should be confined to the external or more readily observed locations in the body. Since the introduction of roentgenography, new instances of anomalies

of the bones have for obvious reasons been disclosed more rapidly. For example, the modern technic of transillumination by means of roentgen rays has brought to notice numerous instances of the osteogenic defect known as radio-ulnar synostosis. Before the era of the roentgen rays, the full interpretation of the fusion of the ends of the two bones of the forearm was difficult in the living person. Now it can be made with full assurance, as has been demonstrated recently by the elaborate studies conducted by Davenport, Taylor and Nelson.[1]

The congenital synostosis of the proximal ends of the radius and ulna, sometimes called also "congenital pronation," is a condition rarely found in one or both forearms, of which the most obvious symptom is an inability to hold the hand supine; i. e., with the palm upward. The condition is a variable one, in the degree of interference with supination and complete pronation, of associated limitations in the functioning of the arm, and, as revealed by roentgenograms, in the extent and nature of the synostosis. Until 1912, less than forty cases had been described in medical literature,[2] whereas this number has been nearly doubled within the last decade. Davenport and his colleagues point out that in most described cases the condition is said to have been congenital; and, indeed, it is frequently noticed in early infancy. It is found in both arms in about half the cases, and it is not infrequently recorded that one or more of the relatives of the patient show a similar defect. It is therefore quite certain that the condition is constitutional, and is not to be ascribed merely to some intra-uterine injury, to a repression exercised by an external agent during development, or to some inflammatory disease that has led to a secondary ankylosis of tissue that was originally developed normally.

Radio-ulnar synostosis has accordingly been removed by modern students of genetics from the category of malformations due to mere accident. It is now suggested by students[1] of the problem that, through some alteration in the chromosomes, the factors that limit chondrification in the upper arm are weakened; or, possibly, the factor affected has to do with shaping of the precartilage plate. In general, in those cases in which there is a clear inheritance of the condition of synostosis (and doubtless in many other cases in which the inheritance is not so obvious), there is probably a gen mutation which alters the various developmental impulses that direct the formation of the proximal end of the skeleton of the forearm. The comparative anatomy of the mammalia shows that the radius and ulna are frequently united. This union is associated partly with their close proximity, so that any overgrowth of either bone may cause a permanent fusion of the two. When the use of the anterior appendage is not seriously interfered with, this union may become normal for a species, genus or family. The occasional and rare synostotic malformations in man thus have resemblance to what is a normal manifestation in other species. Like many other known anomalies, the radio-ulnar synostosis appears to be an inheritable characteristic. Males are twice as likely to be affected as females; and this result holds for bone defects in general. Frequent lack of symmetry in the defect suggests that there is frequent imperfection of dominance. Consanguineous matings are found in the synostotic families, and it is probable that they are especially frequent in them. Fortunately, the study of the phenomena of evolution and the laws of heredity has not been tabued in medicine, for it is leading to fruitful observations that will explain many heretofore obscure defects of mankind.

1. Davenport, C. B.; Taylor, H. L., and Nelson, L. A.: Radio-Ulnar Synostosis, Arch. Surg. **8**: 705 (May) 1924.
2. Baisch, B.: Die kongenitale radio-ulnäre Synostose, Ztschr. f. orthop. Chir. **31**: 46, 1912.

THE IMMUNITY OF LIVING TISSUES TO DIGESTION

The question, "Why doesn't the stomach digest itself?" has long been a popular theme for debate among students of physiology. The mere formulation of the query carries us back to the days of Hunter, who ventured an answer more than a century and a half ago. His explanation of the immunity of the living gastric mucosa to the solvent action of the gastric juice was the first of a series of hypotheses that are essentially vitalistic in nature. They have in common the reference to some property of the living, in contrast to corresponding dead, tissues as the protective feature that prevents the destructive digestive tendency of the gastric juice. The French physiologist Claude Bernard believed that the epithelial covering of the intestinal tract protected the underlying tissues from digestion; but this idea, as Fischer[1] has remarked, besides explaining nothing, stands in contradiction to the facts of pathology, which show that the absence of epithelial covering (for instance, in ulcers of the gastro-intestinal tract from any cause) by no means always—in fact, only at times—is accompanied by a loss of the underlying muscular or other tissues. These subepithelial structures are therefore just as immune against digestion as the epithelium itself. Fischer has pointed out that most of the theories proposed from time to time have covered up the problem at hand by attributing to the intact mucosa "living" properties which we could never hope to find in "dead" matter. As is well known, the "dead" mucosa of the stomach undergoes partial digestion, as seen in the postmortem excoriations of the gastric mucous membrane.

More recent theories have referred the immunity of the gastric cells against digestion either to the protective action of the gastric mucus or to the inhibitory influence of antienzymes in the gastric membrane on the

1. Fischer, M. H.: The Physiology of Alimentation, New York, John Wiley & Sons, 1907.

proteolytic effects of pepsin and hydrochloric acid. Such explanations are obviously quite specific in character, and cannot apply to conditions in which mucus-secreting cells or tissues capable of furnishing antienzymes are not involved. The problem of this protection is not a mere academic question. It may be closely bound up with the genesis of gastric and duodenal ulcers; indeed, there is a common belief that these lesions are determined by a loss of resistance on the part of the mucosa to gastric digestion—hence the expression, peptic ulcer.

The development of experimental surgery and its application to pathology have led to new attempts to secure information regarding tissue immunity to gastric digestion. There are much confusion and many contradictions in the observations already on record. Whereas one investigator records an absence of injury to extraneous living tissues implanted into the functioning stomach, another may have noted widespread destructive effects in seemingly comparable locations. Perfection of technic appears to be of decisive moment here. Especial care must be taken not to injure the blood supply and damage the biologic integrity of transplants if their resistance is to be maintained. For this reason, survival of a tissue after prolonged exposure to gastric juice is far more instructive than destruction, because the latter may be associated with a "devitalizing" associated with loss of blood supply or surgical traumatism.

The remarkable resistance of living tissues, other than the gastric mucosa itself, to gastric digestion has been demonstrated anew by Dragstedt and Vaughn [2] of Chicago. Their striking observations that the normal mucous membrane of the duodenum, jejunum, ileum and colon can resist gastric digestion for months, with no demonstrable pathologic alteration, indicates that the immunity of these tissues is general rather than specific, and is not limited to the gastric mucosa. Within the range of acidity normal to the gastric secretion, the mucous membranes of the intestine are as resistant to hydrochloric acid as is that of the stomach. As these physiologists point out, the evident resistance of the jejunal mucosa to the digestant action of pepsin-hydrochloric acid makes it necessary to look for additional factors in the etiology of jejunal ulcers following gastro-enterostomy. Furthermore, the fact that the capsule of the kidney or of the spleen, and even the parenchyma of these organs, resist gastric digestion when their nutrition is normal indicates that such resistance is far more general than was formerly supposed, and that the mechanism of this resistance does not necessarily reside in some anatomic or physiologic property peculiar to mucous membranes. Have we returned to Hunter's dictum that all living uninjured cells can resist digestion?

2. Dragstedt, L. R., and Vaughn, A. M.: Gastric Ulcer Studies, Arch. Surg. 8:791 (May) 1924.

Current Comment

PROPHYLACTIC INOCULATION OF DOGS AGAINST RABIES

The statistical evidence of the efficiency of the prophylactic treatment of rabies in persons bitten by rabid animals has long been too convincing to permit of doubt by reasoning people, however unconvincing it still remains to some with zoophilic or antimedical sentiments. Some Japanese observations on the prophylactic treatment of dog communities may be of interest to medical readers and acceptable to those who place animal life first in value. There is much rabies in Japan, and Umeno of the Kitasato Institute of Tokyo sought to reduce it by universal prophylactic immunization of the dog population, using a specially prepared and relatively active virus for this purpose. This has been applied as far as possible since 1919 in Tokyo, and since 1918 in Yokohama, about two thirds of the dogs in these communities having been immunized. Figures are available to 1922,[1] during which time there occurred forty-one cases of rabies in inoculated dogs, as against 1,699 cases in about half as many dogs in the same communities which were not inoculated. As a large proportion of the forty-one cases arose so soon after inoculation that they antedated the development of an immune condition, it is evident that this method of prophylaxis is highly effective and a valuable weapon in those communities in which rabies is frequent.

THE COMMERCIAL TAINT IN MEDICAL ADVERTISING

"A profession has for its prime object the service it can render to humanity; reward or financial gain should be a subordinate consideration. The practice of medicine is a profession. In choosing this profession, an individual assumes an obligation to conduct himself in accord with its ideals."

Thus the opening paragraph of the Principles of Medical Ethics of the American Medical Association briefly and clearly distinguishes between a profession and a business or trade. That there are those in the medical profession who are concerned more with the financial rewards that it offers than they are with the service it can give is, unfortunately, true. Such men form a discreditable but small part of the profession. The slump in moral values that followed the Great War has been reflected in the practice of medicine as in all other lines of human activity. Especially, however, has it shown itself at its ugliest in commercial life. This tendency is being shown at present in not a little of the advertising offered to the medical profession by the concerns that are selling apparatus, especially that for physiotherapeutic and diagnostic uses. Such firms, instead of devoting their advertising abilities to describing the points of superiority in the apparatus they have for sale, are stressing to the profession the idea that the purchase of such apparatus will increase the income of the physician by impressing the layman with the scientific attainments of the individual

1. Hata, S.: The Protection of Dogs Against Rabies by Umeno's Method of Preventive Inoculation, J. Immunol. 9:89, 1924.

who would use it. It is perfectly true and obvious that the physician who better fits himself to give service to his patients will, other things being equal, be more successful than the man who does not make this effort. No decent man in the medical profession, however, thinks of adding to his armamentarium for the purpose chiefly, or even merely, of financial gain. To the right-thinking physician, an advertiser's appeal to buy a piece of apparatus because of the "psychic effect" it may produce on the patient is repugnant and insulting. Any firm that thinks it is going to obtain the good will of the medical profession by an appeal to the sordid is sadly mistaken. It is especially unfortunate that some of the makers of physical therapy apparatus should have descended to the gross commercialism just referred to. There is a feeling more or less general that the makers of such apparatus have gone out of their way to cater to the followers of unscientific, so-called drugless cults. It is notorious that quacks of this class are purchasing physical therapy apparatus, which they are utterly incompetent to use, for the one and only purpose of impressing the laity with a show of erudition. Possibly the commercial experience of such firms with the cultists has lowered their ethical standards, and they have mistakenly been led to believe that the same bait that they offer to chiropractors, naturopaths, Abramsites and such riffraff will be swallowed by the medical profession. Therein they are deceived. The practice of medicine is a profession!

WHAT IS INSULIN?

What is insulin? This question has been uppermost in the minds of biochemists for many months. On the correct answer depends the prospect of a chemical synthesis of this unique hormone, which promotes carbohydrate utilization in the organism, and likewise the possibility of more speedily reaching some clearer understanding of the metabolic reactions in which it is involved. Like the long known alimentary enzymes, insulin has been obtained by means of procedures that indicate a close association of the active "principle" with proteins, if, indeed, it does not itself belong in the category of albuminous compounds. Various modes of purification have not served, as a rule, to eliminate the protein-like character of physiologically active insulin products. Only the chemist will be interested in the detailed characteristics that have differentiated the potent pancreatic preparations thus far produced. Somogyi, Doisy and Shaffer[1] of the Washington University Medical School, St. Louis, who have done much toward the development of methods for the purification of insulin, now believe that the activity of the hormone is properly a property of an individual protein, "insulin-protein." They assert that different preparations, purified by different methods, have the same properties and substantially the same degree of activity. Furthermore, they have not encountered active insulin preparations from which they were unable to isolate the characteristic substance. If insulin is not a protein, the St. Louis biochemists argue, and is present only as an admixture in purified "insulin-protein," it must have very high activity indeed. It could scarcely be present in amount more than 5 per cent. of the weight of the "insulin-protein." That fraction of the quantity of "pure" "insulin-protein" which frequently gives convulsions in 1 kilogram rabbits (from 0.01 to 0.02 mg.) would be from 0.0005 to 0.001 mg., and this, when distributed in the blood and tissues of the animal, would give a concentration of the active principle of about 1 in 1 or 2 billion. It is true that observers of repute claim to have worked with insulin preparations that fail to give the usual protein tests. Somogyi, Doisy and Bell are inclined to suspect that such experiences are due to the use of solutions too dilute for the protein tests. As little as 0.01 mg. per kilogram of good preparations may constitute a unit dose. This is an order of magnitude that indicates the difficulties of the chemical problem involved in the identification of insulin.

1. Somogyi, M.; Doisy, E. A., and Shaffer, P. A.: On the Preparation of Insulin, J. Biol. Chem. **60**: 31 (May) 1924.

THE SITE OF ACTION OF BOTULINUS TOXIN

Among the striking features that have attracted attention to botulinus poisoning are the unexpected distribution of the bacteria that are responsible for the disease, the subtle ways in which the disease is developed, and the almost unbelievable minuteness of the dose of toxin responsible for the most severe manifestations. The earlier assumption that the poison acts directly on the central nervous system was based largely on histologic evidence, which has become a matter of contradiction and dispute as the knowledge of the effects of botulism has been extended. In a careful reinvestigation of the subject at the Rockefeller Institute for Medical Research, Cowdry and Nicholson[1] have noted that, except for a slight degree of vascular engorgement, all the brain lesions noted in animals suffering from botulinus poisoning are readily susceptible of some explanation other than that they are produced by the direct action of the toxin on the central nervous system. There is no evidence, they state, inconsistent with the indications that the site of action of botulinus toxin is on peripheral nerve terminals, as already suggested in an earlier issue of THE JOURNAL.[2]

1. Cowdry, E. V., and Nicholson, F. M.: An Histological Study of the Central Nervous System in Experimental Botulinus Poisoning, J. Exper. Med. **39**: 827 (June) 1924.
2. Edmunds, C. W., and Long, P. H.: Contribution to the Pathologic Physiology of Botulism, J. A. M. A. **81**: 542 (Aug. 18) 1923.

Puerperal Sepsis.—The factors which govern the incidence of sepsis are chiefly centered in the large areas of population, and although ideal midwifery may be practiced and taught in the large institutions, the great part of maternity practice in England today falls on the shoulders of the family practitioner, the midwife, and, I am afraid, the "handy-woman" who still "sub rosa" plies her trade. In Birmingham, where my impressions have chiefly been gained, puerperal sepsis is all too common, just as it is in other large communities, although Birmingham compares very favorably with the country as a whole. In the year 1923 the notifications of puerperal fever in Birmingham numbered 185 (9.6 per thousand births) and the deaths from this cause registered 34 (1.7 per thousand births).—Beckwith Whitehouse: Puerperal Sepsis, *Lancet* **1**:1091 (May 31) 1924.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Child Labor Amendment Ratified.—The house of representatives went on record, June 27, as the first legislative body to ratify the proposed child labor amendment to the federal constitution, by a vote of 45 to 40.

Annual Clinic Week.—The annual clinic week was held at the University of Arkansas School of Medicine, Little Rock, June 2-7, under the direction of Dr. Arthur R. Stover, acting dean. In addition to clinical work, entertainment was provided by the Pulaski County Medical Society and the faculty of the college.

CALIFORNIA

San Joaquin Health Center Wins.—The San Joaquin local health district may continue, as a result of a recent decision by the supreme court that the law under which it is organized is constitutional (THE JOURNAL, Aug. 25, 1923, p. 666). A test action was brought by E. G. Stuckenbruck and a taxpayer against the board of supervisors asking for an injunction to prevent the tax levy for the health district. Dr. John J. Sippy is district health officer.

Personal.—Dr. Edwin Wayte, assistant superintendent of the Southern California State Hospital, Patton, has been appointed medical superintendent in charge of the Norwalk State Hospital, to succeed Dr. Charles F. Applegate, who has resigned.——Dr. George J. Hall, city health officer of Sacramento, has resigned, after three years' service in that office. ——Dr. Archibald W. Truman, Washington, D. C., has been appointed medical superintendent of the Glendale Sanatorium, Glendale, to succeed Dr. Henry G. Westphal.——Dr. Walter M. Dickie, secretary of the California state board of health, has been elected president of the California Conference of Social Work.——Dr. James G. Baird, for many years health officer of Riverside County, has resigned.

CONNECTICUT

Diploma Inquiry Continued.—Other witnesses who have testified before the grand jury at Hartford since it resumed sessions, May 13 (THE JOURNAL, May 24, p. 1698), are:

William P. Sachs, who related his relations with Dr. Robert Adcox at the time that he (Sachs) was dean of National University. Sachs stated that when he was appointed superintendent of education in Missouri, Adcox immediately came to him and suggested that certain credentials be issued to men whose names were furnished by Adcox. About 1,500 such certificates were issued for which Sachs was paid from $10 to $20 each, and for which Adcox received $200. Sachs read a list of fifty-four names to whom certificates of educational qualifications had been issued by him without examination and who later went to Connecticut (these names have been published in THE JOURNAL in reports on this inquiry). Sachs testified to having gone to see Date R. Alexander in Kansas City, to secure a college diploma for a man named Combs. He was given $200 to obtain the diploma, but Alexander stated that the price had now gone up to $500. Combs was instructed to meet Alexander at the Hotel Garde, New Haven, where, it was stated, he would be given the necessary credentials. Sachs stated that, in 1923, Dr. Ralph A. Voight called on him, and told him that he had a "prolific sucker" who was buying everything in sight (this was Harry Brundidge, the St. Louis reporter), and Sachs made out a high school credential and a diploma of the National University of Medicine (closed in 1918) to Harry "Thompson." Sachs received $80 for this diploma, he testified.

Dr. Stanley H. Osborn, state commissioner of health for Connecticut, was on the witness stand, May 15. He stated that he had requested the secretaries of the various boards for photographs of the "physicians" whose licenses to practice were revoked, the purpose being to send these photographs to the departments of health in the various states.

George M. Sutcliffe, in his testimony, stated that he had tutored twenty-two "dumb-bells" in Colorado, in 1920, in an arrangement with Dr. Adcox, in order that the students might pass the Colorado examinations. He also stated that, in 1918, he paid Dean Briggs a $5 entrance fee, and entered the St. Louis College of Physicians and Surgeons. He became registrar the following term, and graduated at the end of the second year. He also told of the issuance of honorary degrees to Chinese and Japanese and to a student named Val Rapp (Green Bay, Wis.).

Harry T. Brundidge, on resuming the witness stand, identified canceled checks that had been issued by Dr. Adcox to various persons, whose names had been frequently mentioned in connection with the operations of the diploma mills. The checks were drawn on the Vanderventer Trust Company, and were identified and read as follows: Dr. Robert Lewis White, $1,150; James W. Cotner, $100; Dr. Sam Kaplan, $500; Dr. Sam Kaplan, $500; Dr. P. Koraitis, $100; Dr. W. F. Todd, $1,500; Harry Givens, $1,100; Alois A. Winterer, $100; Dr. Lee R. Mitchell, $350; Dr. O. M. McMurtrey, $100, and Dr. O. M. McMurtrey, $100. Brundidge denied being in the employ of the American Medical Association, or of having received pay from that association. He admitted having talked with President Coolidge on the situation, by invitation of Secretary Slemp. Brundidge identified a photograph of a telegram sent from Achille De Marco, New York, to Dr. Alexander, with reference to "six" he would have to take care of, and also a letter to Adcox from Samuel Posner of Brooklyn, requesting Adcox to have his "D" ready as he had forwarded $300 for it. He testified to a "split sheet" taken from the office of Adcox, which contained the names of thirty or forty men who had been licensed in various states, with sums of money opposite their names. This money is understood to have been split in thirds between Owen T. Owen, Chicago, and Drs. Adcox and Briggs.

Dr. James Edwin Hair, secretary of the eclectic examining board, testified that George J. Nolan stole his original application for medical application from his (Dr. Hair's) desk in his home in Bridgeport, and that sixteen or seventeen applications were missing, including that of Bernard I. Kafka.

Dr. Ralph L. White, of New Canaan, testified, May 20, in explanation of his receipt of a check of $1,150 from Dr. Robert Adcox, St. Louis, that the sum was a refund of money advanced by him (White) for the purchase of an honorary degree from the University of Southern California, and that later he demanded the return of the money as he did not want the degree. He also stated that Dr. John R. Brinkley, of Fairfield (a goat gland "specialist"), told him of the possibility of getting two degrees for $2,500, and that later Brinkley introduced him to Dr. Adcox as the man who could secure the diplomas.

With the summing up of evidence by Attorney General Healy for the state and by John Dillon, council for the eclectics, the hearing before Referee Holcomb on the appeals of a group of eclectics from the revocation of their licenses, closed, May 20. The sudden termination of the hearing, when Dillon (for the eclectics) announced there would be no further evidence, occasioned some surprise to Attorney General Healy, and he asked Dillon if he was afraid to produce his witnesses so that they might be subjected to the light of examination. He asked why graduates from the two schools in Missouri under fire should flock to Connecticut if they did not know in advance that they could get licenses and, in the face of evidence presented, he declared that the licenses of these men should be revoked by the referee. That all allopaths and homeopaths taking examination for licenses between the years 1918-1923, inclusive, had been licensed illegally, because the examining boards of the two schools had not filed with the Connecticut Department of Health a list of the approved colleges in their respective schools of practice, was the countercharge made by Mr. Dillon in answering Attorney General Healy's claim that the eclectic physicians were illegally licensed.——At the request of Governor Templeton, Attorney General Frank Healy ruled in an official opinion, June 23, that appointments to the board of chiropractic examiners and the board of naturopathic examiners should be made regardless of the grand jury's inquiry regarding the abuse of medical practice in the state.——At the recent annual meeting of the state homeopathic association in Hartford, a legislative committee was appointed to act with committees from other medical societies, to secure a new medical practice act.——Dr. Robert Adcox, St. Louis, involved by the medical "diploma mill" exposé was found guilty, June 18, of bribery in connection with the activities of the mill, and was sentenced by a jury in the circuit court, St. Louis, to two years in the penitentiary.

DISTRICT OF COLUMBIA

Major Coupal Appointed President's Physician.—Major James F. Coupal, M. C., U. S. Army, has been appointed physician to the President to succeed Brig. Gen. Charles E. Sawyer who has resigned. Major Coupal was born in Massachusetts, 1884, and graduated from Tufts College Medical School, Boston, 1909. He served two years in France during the World War. He is curator of the Army Medical Museum, Washington, D. C., and president of the International Association of Medical Museums.

FLORIDA

Orthopedic Clinic Reopened.—After having been closed for two years, the orthopedic service of the state board of health has been reopened at Jacksonville under the supervision of Dr. Frank L. Fort of Shreveport, La. All treatment will be free for any indigent crippled child under 16 years of age. This service was created by special act of the legislature in 1911, and functioned continuously until 1922, when it was closed because of the failure of the legislature to provide funds for its maintenance. It will now be a permanent and integral working unit of the state department of health. In the event of hospital treatment being needed, white patients will be sent to St. Luke's Hospital, and colored patients to Brewster's Hospital. Dr. Fort was formerly surgeon to the Shriners' Hospital for Crippled Children, in Louisiana.

ILLINOIS

Illegal Practitioners.—According to reports, Dr. Bessie Atherton, a chiropractor of Peoria, was arrested, June 1, charged with the murder of Mrs. Caldwell who died as the result of an illegal operation performed, it is alleged, by the prisoner.——Charles Symens, "a magnetic healer" of Freeport,

was recently fined $100 and costs when he was found guilty of practicing medicine without a license.

Chicago

Shriners' Hospital Site Purchased.—A 17-acre plot on Oak Park and Belden avenues was purchased for the sum of $44,000, June 24, as the site for the $500,000 Shriners' Hospital for Crippled Children (THE JOURNAL, June 28, p. 2128).

Social Center.—More than half the $500,000 wanted has been subscribed toward the erection of a community center, to be opened on the north side in the near future. W. B. Frankenstein, chairman of fund committee, contributed $100,000. The site has not yet been chosen. The center will be nonsectarian.

Chicago Medical Society.—At the annual meeting of the society, June 17, Dr. Jeremiah H. Walsh was elected president; Dr. Malcolm L. Harris, president-elect; Dr. Clarence W. Leigh, treasurer, and Dr. Roy R. Ferguson, secretary. There will be no more meetings until October, but the *Bulletin* of the society will be published as usual during the summer months.——Members of the society are requested to notify the secretary's office at once of any gunshot wounds coming under their care, which information will be turned over to the authorities for the purpose of apprehending criminals.

INDIANA

Hospital Society Elects.—At the annual meeting of the Indiana Hospital Association in Fort Wayne, April 24, Dr. Charles N. Combs, Terre Haute, was elected president.

Leper in East Chicago.—A case of leprosy was found in East Chicago, June 12. The man was a Mexican laborer. He is in quarantine until he can be transported to the leprosarium either at Carville, La., or in the Hawaiian Islands.

IOWA

Physician Fined.—According to reports, Dr. David H. Nusbaum, Storm Lake, was fined $755 at Alta, June 6, on a charge of violating the Volstead act.

New University Buildings.—The governor broke ground for the State University of Iowa's new $4,500,000 medical building, June 17, the site of which is near the new children's and psychopathic hospitals, and the new nurses' home. This institution was made possible by the state appropriating funds to equal a gift of the Rockefeller Foundation.

KANSAS

License Revoked.—The state board of medical examiners revoked the license of Dr. Hannibal H. Barrett, Parker, June 17, on the grounds of "gross immorality." It was stated that Dr. Barrett obtained his M.D. degree from a "diploma mill."

LOUISIANA

Sterilization Bill Passed.—A bill to arrest the propagation of the feebleminded in state institutions by sterilization passed the senate, June 21, by a vote of 22 to 11. The insane and epileptics were excluded from the provisions of the bill, as finally passed.

Spinal Masseurs Fined.—Chiropractic or any other similar "laying on of hands" to relieve pain was declared a violation of the state medical practice act by Judge Byrnes in the civil district court, New Orleans, June 9. Judge Byrnes permanently enjoined Joseph B. and Walter W. Fife from practicing their alleged "spinal masseur" treatment and fined them $100 each and costs.

MARYLAND

Hospital News.—Dedication services for the West Baltimore General Hospital were held, June 12-13. The hospital contains 150 beds and is located on the grounds of the old Hebrew Orphanage, South Walbrook.——All the physicians, nurses and hospital employees of Johns Hopkins Hospital, Baltimore, were vaccinated, June 15, following the discovery of a case of smallpox in the negro ward of the institution.

MASSACHUSETTS

Personal.—Dr. Sumner Coolidge, superintendent of the Lakeville State Sanitarium, Middleboro, for more than fifteen years, it is reported, has resigned at the request of Governor Cox.——Dr. Arthur E. Pattrell, executive officer Boston Psychopathic Hospital, has been appointed assistant superintendent of the Sheppard and Enock Pratt Hospital, Towson, Md., and will take up his new duties, July 1.

Society News.—Dr. Charles S. Benson, Haverhill, was elected president of the Essex North District Medical Society at the annual meeting, May 14; Dr. Randolph C. Hurd, Newburyport, vice president; Dr. Joseph Forrest, Burnham, secretary, and Dr. Edward H. Ganley, Methuen, treasurer. The president of the Massachusetts State Medical Society, Dr. Enos H. Bigelow, Framingham, addressed the meeting on "The Relation of the District Society to the State Body."

Hospital News.—Plans are being made at the Massachusetts General Hospital, Boston, for a $300,000 improvement and enlargement of the Bullfinch building.——The cornerstone of the Shriners' Hospital for Crippled Children was laid, recently, in Springfield. It is expected that the institution will cost $350,000.——A 100 bed maternity building, modeled after the Lying-In Hospital, will be the first step in the enlargement of the Boston City Hospital, for which the last legislature authorized raising $3,000,000 for a 25-year expansion program.

MISSOURI

Dr. Manning Sentenced.—According to reports, Dr. Thomas S. Manning, St. Louis, was recently sentenced to ten years in prison and fined $6,000 for violation of the Harrison Narcotic Law. Two previous sentences of Dr. Manning for violation of this statute, one in 1920 for two years and another in 1921 for fifteen years, were reversed by the U. S. circuit court of appeals on technicalities.

Chiropractors Leave City.—The chiropractors H. T. Jett and wife of St. Louis, who were arrested last April (THE JOURNAL, April 26, p. 1369) for practicing medicine without a license, were each fined $50 and costs. Jett besides practicing chiropractic was a teacher in the Soldan High School, but on his arrest the board of education terminated his services as teacher. The Jetts paid their fines and have left St. Louis, according to report.

Recompense for Blood Transfusions.—An ordinance is before the board of aldermen of St. Louis which, if adopted, will authorize the hospital commissioner to pay for blood to be used at the city institutions for transfusions when necessary to save the lives of patients. The ordinance provides a fund of $500 to be set aside for this purpose, and authorizes the hospital commissioner to pay $25 to each donor. At present, blood is given voluntarily by friends of patients.

State Board Wins Suit.—Dr. Arthur D. Farber, St. Louis, lost his suit against the state board of health to prevent that body from obtaining witnesses at his trial on charges of unprofessional conduct filed by the St. Louis Health Department. Dr. Farber was charged with circulating advertising matter that contained misrepresentations about cures. When the state board of health sought to compel the appearance of a Dr. Blattner, a former associate of Dr. Farber through a summons issued by a notary public, Dr. Farber's attorneys applied to the supreme court for a writ of prohibition contending that the state board of health had no authority to issue a subpena for an involuntary witness. The supreme court held that while the board of health did not have the power to issue subpenas the fact that charges were pending before the board was sufficient authority for a notary public to issue summons for the appearance of witnesses for taking depositions. The court further held that under the police power of the state the state board of health had the authority to investigate charges against physicians and to revoke licenses.

NEBRASKA

Hospital News.—The Swedish Immanuel Deaconess Hospital, Omaha, will erect an addition at a cost of $200,000 in the near future.——The Grand Island General Hospital, operated by Dr. Henry B. Boyden, was recently reopened following extensive alterations.

Nebraska Bans Alien Physicians.—At a meeting of the state board of medical examiners in Omaha, June 8, a resolution was adopted that no physician who has not taken out his first citizenship papers or who is unable to pass an examination in English will be permitted to practice in Nebraska. A similar resolution, aimed at alien pharmacists, was recently adopted by the state pharmacy board.

NEW HAMPSHIRE

State Medical Meeting.—At the annual meeting of the New Hampshire Medical Society in Manchester, June 24-25, held under the presidency of Dr. Howard N. Kingsford, Hanover, the following officers were elected for the ensuing year:

president, Dr. Lewis W. Flanders, Dover; vice president, Dr. Thomas W. Luce, Portsmouth, and secretary, Dr. Dennis E. Sullivan, Concord.

NEW YORK

Smallpox Closes Schools.—The public schools at Broadalbin were ordered closed for the remainder of the school term, June 13, when several students contracted smallpox, it is reported.

Dairyman Sues Town.—The suit of Grant A. Forbes and his family for $50,000 damages against the city of Jamestown, recently, resulted in a verdict of $12,000 for the plaintiffs. Following a typhoid epidemic in 1923, it was found that milk from the Forbes dairy farm was responsible for the transmission of the disease and Forbes' sister-in-law was alleged to be a typhoid carrier. Forbes stated that his business has depreciated and that for many years the city had discharged sewage into a stream which flows through his farm. Suit was brought on the ground that the milk became infected by means of this stream. Counsel for the city will make an appeal.

Personal.—Dr. Edward T. Delehanty, Albany, has been appointed epidemiologist of the bureau of health, a post recently created by the state health commissioner.——Dr. Hilton J. Shelley has been appointed city health officer of Middletown succeeding Dr. Jacob L. Hanmer, resigned.——Prof. Leo H. Baekeland, Yonkers, president of the American Chemical Society, has been made commander of the Order of Leopold by King Albert of Belgium.——Dr. Robert Knight, has resigned as health officer of the village of Seneca Falls to accept the appointment as epidemiologist for the state department of health. Dr. William M. Follette will succeed him.

New York City

Society News.—The Flatbush Medical Society recently elected the following officers for the ensuing year: president, Dr. Samuel Lloyd Fisher; vice president, Dr. Stanley B. Thomas, and secretary, Dr. William F. C. Steinbugler.——The Medical Society of the County of Queens and that of Greater New York held a combined outing, dinner and meeting at the Pomonok Country Club, June 3. Thomas S. Cuff, federal deputy attorney general, spoke on "Law Enforcement and Its Relation to the Practice of Medicine."

Personal.—Dr. Harry Plotz has been made a member of the staff of the Pasteur Institute in Paris, where he is assisting Professor Besredka.——Dr. Robert F. Sheehan has been appointed by the governor manager of the new Harlem Valley State Hospital for the seven year term.——Dr. Claude Regaud, director of the Radium Institute of Paris, was given a dinner at the Hotel Commodore, June 19, by the New York Roentgen Society and the Memorial Hospital. Dr. Frederick M. Law, president of the Roentgen Society, presided. Dr. Regaud gave an address on his cancer work.——Dr. Seymour Oppenheimer has been appointed chief of the honorary board of consultant surgeons to the police department of New York.——Dr. William W. Herrick, professor of clinical medicine at Columbia University, New York, was elected president of the Association of Yale Alumni in Medicine at the annual meeting in New Haven, June 15.——Dr. George K. Meynen has been made surgical director and Dr. Charles A. Ross medical director of the Mary Immaculate Hospital, Jamaica, N. Y.

Caring for Convalescents.—The public health committee of the New York Academy of Medicine has been making a survey in this city as regards the care of convalescent patients. A special report which this body has made on this "neglected phase of medicine" points out that there has been no serious discussion of the kind of care which the various types of convalescent patients require. There has likewise been no thorough consideration of the types of cases which should be cared for jointly, and which would harmonize from an administrative medical point of view. To remedy this the public health committee plans to study the convalescent needs of the city, with a special view to the framing of a community policy and developing medical and administrative standards for the guidance of convalescent homes. It plans to organize a central reference bureau to furnish information and to act as a clearing house, to facilitate a better distribution of convalescent patients to the existing homes and hospitals, and to assure treatment best suited to each patient. The bureau will be financed by the Sturgis Research Fund and the Burke Foundation. The survey shows that the existing facilities are reasonably sufficient but that they are underutilized.

NORTH CAROLINA

Tuberculosis Work.—The North Carolina Tuberculosis Association has opened offices in Southern Pines with Dr. Lewis B. McBrayer, managing director in charge. Emphasis this year will be made on the modern health crusade and nutrition. During 1923 more than 80,000 children were enrolled in nutrition classes. A recent meeting of the executive committee authorized the appropriation of $3,333 to some county in the state willing to assume the remainder of the required expense to be used in a child health demonstration.

OHIO

Research Laboratories Dedicated.—The Clinical Research Laboratories, Cleveland, which will be under the direction of Dr. George W. Crile, were formally dedicated, June 14.

State Health Departments Make Agreement.—Ohio, Pennsylvania and West Virginia, beginning August 1, will cooperate to eliminate stream pollution. An agreement was made at a recent meeting by the state departments of health, in Cincinnati, for the prevention of contamination of the water supply in these three states. There was a similar agreement made two years ago between Delaware and New Jersey with respect to sewage disposal and industrial waste in the Delaware River.

PENNSYLVANIA

Beaver County Sanatorium Dedicated.—Beaver County's new tuberculosis sanatorium, the first of its kind in western Pennsylvania to be equipped under state regulations, was dedicated, June 4. Dr. Elmer H. Funk, director of the department of the diseases of chest of Jefferson Hospital, made the principal address.

County Child Health Association.—The Cambria County Child Health Association was organized in Johnstown, May 20. The purpose of this organization is to reduce infant mortality and morbidity in this county. Practically all welfare organizations in Cambria County were represented at the meeting. The following officers were elected: president, Mayor Louis Franke; first vice president, Dr. T. E. Mendenhall, and secretary, Miss Mary D. Storey. Plans for complete organization will soon be completed and a full-time worker will be secured. A census of the county will be made and clinics and health centers opened in various places.

Physical Examinations for Physicians.—The committee on public relations of the state medical society has made provision for the examination by leading men of the state of 100 physicians at the annual session at Reading in October. These physicians will be requested after the examination to make such comments, criticisms, and suggestions as will help frame a standard for future use. Only physicians who believe themselves to be in good health should apply to be examined, and it is important in view of the public's interest in this question that a good number apply. The results of the individual examination will be strictly confidential. Applications will be filed in the order of receipt with the secretary of the committee, Dr. Frederick L. Van Sickle, 230 State Street, Harrisburg, then forwarded in due time to the examiners.

Philadelphia

Medical Club Reception.—The last reception of the year of the Medical Club of Philadelphia was held in the Bellevue-Stratford, June 17. William P. Wilson, D.Sc., director of the Philadelphia Commercial Museum, was guest of honor.

University News.—The degree of doctor of science was conferred on Admiral Edward R. Stitt, Surgeon General, U. S. Navy, at the commencement exercises of the University of Pennsylvania, June 18; Dr. James T. Priestley, Des Moines, Iowa, received the degree of doctor of science *in absentia*, due to illness.——Dr. Hubley R. Owen, chief police surgeon, Philadelphia, has accepted the clinical professorship of surgery at the Woman's Medical College. Dr. James Ralston Wells has been appointed associate professor of surgery, and Dr. Bernard B. Neubauer, assistant professor of surgery. Dr. Walter G. Elmer will continue as clinical professor of orthopedic surgery.

SOUTH CAROLINA

Hospital News.—A new county hospital will be erected at Newberry at a cost of $40,000.——The Brewer Hospital for Negroes, Greenwood, recently completed at a cost of $30,000, was dedicated, May 25. This institution was made possible by an appropriation of $15,000 by the American Missionary Association and the remainder was subscribed.——The

Wallace-Thompson Hospital, Union, was sold by auction, June 2, for $24,000 to a syndicate, which will incorporate a company to continue operating the institution.

TEXAS

Orthopedists Organize.—At a meeting in San Antonio, April 30, the Texas Society of Orthopedic Surgeons was organized and the following officers elected: Dr. Edward A. Cayo, San Antonio, president; Drs. William B. Carrell, Dallas, and Solomon D. David, Houston, vice presidents; Dr. James R. Bost, Houston, secretary-treasurer.

VERMONT

Hospital News.—A new nurses' home will be erected at the Heaton Hospital, Montpelier, at a cost of $50,000.

VIRGINIA

Eugenics Laws.—The sterilization law for mental defectives in state institutions became effective, June 15.——A law forbidding the intermarriage of negroes and Caucasians, also went into effect on that date.

WASHINGTON

Verdict Set Aside.—Judgment of $5,000 recently given by a jury against Dr. James Sutherland, Spokane, for alleged negligence in treating a fractured arm, has been set aside by the judge. The court stated that there was no showing of neglect on the part of the physician.

WISCONSIN

Dr. Ruhland Resigns.—Dr. George C. Ruhland, health commissioner of Milwaukee, who has been in public health work in the state for nearly twenty years, will resign, August 1, to become administrative director of the Milbank Fund health demonstration at Syracuse, N. Y.

CANADA

Society News.—At the annual meeting of the Academy of Medicine of Toronto, May 6, Dr. William Harley Smith was elected president, and Dr. Dennis Jordon, secretary.——The maritime branch of the American College of Surgeons will meet with the Prince Edward Island Medical Society at Charlottetown, July 9-10.——The annual meeting of the Medical Society of Nova Scotia will be held at Amherst, July 16-17. Dr. S. Lyle Cummins, Royal Army Medical Service, of Cardiff, Wales, will address the meeting.——The Halifax branch of the Nova Scotia society elected Drs. Edward V. Hogan and Walter L. Muir, president and secretary, respectively.——At the meeting of the Western Ontario Academy of Medicine, recently, Dr. John D. Comrie, professor of medicine at the University of Edinburgh, Scotland, was the guest of honor. He lectured on "Scurvy," showing pictures taken in Russia during the World War.——The Northern Manitoba Medical Association was recently organized with Dr. William J. Harrington, Dauphin, president; Dr. George D. Shortreed, Grandview, vice president, and Dr. Noble G. Trimble, Dauphin, secretary.——The twenty-sixth annual meeting of the Vancouver Medical Association was held, April 17, in that city. Dr. Thomas H. H. Milburn was elected president, and Dr. Oliver S. Large, secretary.——The annual meetings of the North Pacific Pediatric Society and the British Columbia Medical Association were held, June 25, in Vancouver.——Drs. T. Bennett Green and David A. Clarke were elected president and secretary-treasurer, respectively, of the Fraser Valley (B. C.) Medical Society at the annual meeting, May 1.——The executive secretary of the British Columbia Medical Association recently completed a tour of several country districts, visiting every physician individually and bringing him up to date with the activities of the association.——The Central Manitoba Medical Association was recently organized at Portage La Prairie. Dr. William E. Metcalfe was elected president, and Dr. George A. Hassard, secretary-treasurer.——The members of the Harvey Club of London were guests of Dr. Harry Protton at Byron Sanatorium recently. Dr. George D. Porter, University of Toronto, outlined the history of medicine from Hippocrates to the time of Laennec.

GENERAL

American Dermatological Association.—At the annual meeting of this association in Minneapolis, June 5-7, Dr. Howard Fox, New York, was elected president; Dr. Andrew Porter Biddle, Detroit, vice president and Dr. Udo J. Wile, Ann Arbor, Mich., secretary-treasurer (reelected).

American Otological Society.—At the annual meeting of the society in Swampscott, Mass., June 3-5, Dr. Eugene A. Crockett, Boston, was elected president, succeeding Dr. John B. Rae, New York. Dr. Philip D. Kerrison, New York, was elected vice president and Dr. Thomas J. Harris, New York, secretary-treasurer.

Rockefeller Foundation to Help Finance Medical School.—It is reported that the Rockefeller Foundation, New York City, announced, May 28, that it would finance for five years plans for the development of the medical school of the American University of Beirut, Syria. The appropriation provides for fellowships, laboratory equipment and periodicals.

Health Authorities Elect.—At the thirty-ninth annual conference of State and Provincial Health Authorities of North America in Lansing, Mich., June 17-18, Dr. James A. Hayne, health commissioner of South Carolina, was elected president; Dr. Byron U. Richards, secretary of the Rhode Island Health Commission, vice president, and Dr. Richard M. Olin, state health commissioner of Michigan, was reelected secretary-treasurer. The next conference will be held in Washington.

American College of Radiology.—The second meeting of the college was held in Chicago, June 11, with Dr. George E. Pfahler, Philadelphia, president. Dr. William A. Pusey, President of the American Medical Association, gave an address. The new officers elected were: president, Dr. William H. Stewart, New York; president-elect, Dr. Samuel B. Childs, Denver; vice president, Dr. Preston M. Hickey, Ann Arbor, Mich., and secretary, Dr. Albert Soiland, Los Angeles.

Medical Women's Election.—At the tenth annual meeting of the Medical Women's National Association in Chicago, June 8-10, Dr. Anna E. Blount, Oak Park, Ill., was elected president succeeding Dr. Kate C. Mead, Middletown, Conn.; Dr. Katherine C. Manion, Port Huron, Mich., was elected president elect; Drs. Elizabeth B. Thelberg, Poughkeepsie, N. Y., Frances C. Van Gasken, Philadelphia, and Mary E. D. Dennis, Los Angeles, vice presidents; Dr. Blanche M. Haines, Lansing, Mich., secretary and Dr. Ethel D. Brown, New York, treasurer.

Publications for General Distribution.—There is a list of the nontechnical publications issued by the Public Health Service, which are suitable for general distribution in U. S. *Public Health Reports* (**39**:22 [May 30] 1924). These cover a wide range of subjects, and health officers and others interested in campaigns for health improvement may find in them aid in solving local health problems. Many of the publications listed are for free distribution, and as long as the supply lasts may be obtained by addressing the Surgeon General, U. S. Public Health Service, Washington, D. C.

Prohibition Information.—Nearly a million dollars in fines have been imposed in federal courts, since July, 1922, for conspiracy to violate the prohibition laws, reports in the office of the federal prohibition commissioner show. In addition, jail sentences imposed in such cases total approximately 450 years. During this period nearly a thousand conspiracy cases have been instituted. Due to interstate ramifications, such cases are much more difficult to develop, a year or more being required in some instances to gather the evidence and prepare the case in such form as to insure conviction. A very large percentage of such cases as have been instituted have resulted in conviction, at least of the main defendants. Penalties for conviction on conspiracy charges are severe, in comparison with those provided for violation of the basic provisions of the National Prohibition Act. The heaviest penalty ever imposed in a federal court for violation of the prohibition laws was secured under the conspiracy section of the Criminal Code. It was a fine of $21,000 and a prison sentence of twenty-one years, in the case of Morris Orsatti of California. Fines imposed under the provisions of the National Prohibition Act since prohibition became effective total nearly nineteen and a half-million dollars, and jail sentences aggregate approximately six thousand three hundred years. These penalties were imposed in about 150,000 cases. Offers in compromise totaling approximately three and one half million dollars have been accepted in adjustment of the civil liability of breweries that have violated the law.

LATIN AMERICA

Personal.—Dr. Fernandes Figueira has resigned as director of the Infants' Policlinic at Rio de Janeiro. He is succeeded by Dr. Mello Leitão.——Prof. H. Roxo of Rio de Janeiro has been elected foreign member of the Société clinique de médecine mentale at Paris.——Orlando Rangel, a pharmacist of Rio de Janeiro, has endowed a fund for a quadrennial

prize to be awarded by the Academia de Medicina at Rio de Janeiro for distinguished work in medicine or pharmacy. The prize is to be conferred for the first time on the centennial anniversary of the Academy in 1928.——The executive board of the newly inaugurated Guanabara Sanatorium at Rio de Janeiro includes Drs. R. Pacheco, Z. Goulart, R. Josetti, D. de Barros, Moreira da Rocha and Silveira Gusmão.

FOREIGN

Ireland's Surgeons Election.—At the annual meeting of the Royal College of Surgeons of Ireland, the first week in June, Dr. Richard C. B. Maunsell was elected president; Dr. Andrew Fullerton, vice president, and Sir Frederick C. Dwyer, secretary.

Medical News from Japan.—A monument in honor of Dr. F. von Siebold, a Dutch physician who went to Japan in 1823, was recently unveiled in Nagasaki.——The new Seoul Imperial University Medical School is completed and will be opened in the near future. Dr. K. Shiga has been appointed dean of the medical school.——As a result of the general election throughout the country, May 10, fifteen out of thirty-five medical candidates secured seats in the Lower House. These include Dr. Mikinosuke Miyajima, director of the Kitasato Institute for Infectious Diseases and editor-in-chief of the *Japan Medical World*.——Drs. Haruo Hayaski and Kenzo Sudo have been appointed deans of the Tokyo Imperial University Medical College and the Kanazawa Medical College, respectively.——Dr. Keozo-Dohi of the Tokyo Imperial University has contributed 50,000 yen and his students and colleagues 15,000 yen, for the establishment of a dermatologic museum at the university to celebrate his twenty-fifth anniversary as professor of dermatology.——Under the new regulations making sixty years the age limit, Drs. Kinnosuke, Miura, W. Okada and Y. Tashiro of the Tokyo Imperial University, have resigned their professorships.

Personal.—Prof. Wilhelm Stepp, who is director of the university policlinic at Giessen, has been given a six months' leave of absence to study vitamins in the United States, on the invitation of the Rockefeller Foundation.——Prof. O. Vogt and Dr. Cecile Vogt of the Berlin institute for research on the brain have been invited to lecture at Lisbon and Oporto.——Dr. Edward Mellanby, professor of pharmacology, University of Sheffield, has been awarded the Stewart Prize of the British Medical Association for work on the relation between rickets and dietetic deficiency.——The Austrian Anti-Cancer Society has awarded its 1923 prize to Dr. Lipschütz for research into the origin of experimental tar cancer of the mouse, and to Dr. Nather of the surgical clinic of Vienna, for research into the pathology and therapy of carcinomatous diseases.——Dr. John Utting, former lord mayor of Liverpool; Lieut. Col. T. J. Carey-Evans, British Indian Medical Service, and Dr. Malcolm Watson, of the Federated Malay States, have been knighted by the king of England.——Sir Auckland C. Geddes, former British ambassador to the United States, has been elected president of the British Society for the Prevention of Venereal Disease.——Drs. J. C. McVail, Sir E. Coey-Bigger, W. H. L. Duckworth, Prof. J. B. Leathes, and Sir Humphry Rolleston have been appointed a temporary board of governors of the newly founded London School of Hygiene.——Dr. Joseph T. Wigham has been appointed professor of pathology at the University of Dublin, succeeding Dr. A. C. O'Sullivan.——Mr. Ernest Harnack, of the London Hospital, who lost both his arms in his effort to find a protection against roentgen rays, has been presented with a framed testimonial from the Carnegie Hero Fund.——Abraham Flexner of New York, it is reported, has been awarded the prize of the German Society for Repression of Venereal Diseases this year in appreciation of his work on "Prostitution in Europe."——Prof. Dr. B. Morón of Algeciras, Spain, has received a letter from the prime minister of Great Britain, expressing the appreciation of the government for his care of British subjects during his long career.

Deaths in Other Countries

Dr. **Robert Kennedy,** St. Mungo professor of surgery in the University of Glasgow and surgeon to the Royal Infirmary.——Dr. **Forbes Fraser,** surgeon of the Royal United Hospital, Bath, England, who was to have been president of the British Medical Association at its annual meeting in Bath next year, aged 53.——Dr. **Vincenzo G. Marano,** consul for Italy in New South Wales and formerly a practitioner in San Francisco; Australian correspondent for the Circle Frentano Society and the Italian Society of Science, aged 74.——Dr. **Barrois,** a roentgenologist of Toulon, a victim of his work with roentgen rays, aged 50.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 9, 1924.

Epidemic Encephalitis

In view of the increase in the prevalence of epidemic (lethargic) encephalitis, a further memorandum on this disease has been issued by the ministry of health. Attention is directed to the value of local inquiry as to the presence of mild, abortive or unrecognized cases (whether contacts with known cases or not), in order to obtain all available facts bearing on the epidemiology of the disease. During the first seven weeks of the second quarter of 1924, the number of cases notified in England and Wales was 1,715, as compared with 753 in the first quarter; 1,025 in 1923; 454 in 1922; 1,470 in 1921; 914 in 1920, and 538 in 1919. The spring and winter months show the highest prevalence, and a similar seasonal distribution prevails on the continent. In the severest cases, the patients lie in bed like a log or resemble a waxen image in the lack of expression and of mobility. The immobility may be accompanied by catalepsy. Various degrees of stupor have been noted. The condition may be one of deep coma with open eyes, total lack of facial expression, and inability to be roused. More commonly, the condition is not so grave, but the patients are in a profound sleep, from which they can be aroused to answer questions or to partake of food. When undisturbed, they quickly lapse again into stupor. Certain patients resent being roused, and display intense irritability or utter moaning cries when touched. The duration of the stupor is variable. It may last for only two or three days, or more often may persist for from two to five or even eight weeks. Periods of remission may occur in the course of the malady. The onset of coma, although grave, does not always imply a fatal issue. Many patients display emotion, and are childish in demeanor. The clinical type of case seen during the present epidemic appears, on the whole, to be less severe than before. In many instances the prodromal period appears to exceed the usual seven days. The onset is often ascribed to "influenza," and a fortnight or more elapses before the definite signs of encephalitis are manifest. Patients do not remain for lengthy periods in profound stupor or coma, and some have made an unusually rapid recovery; catalepsy is rare. While the prominent symptoms in a material proportion of cases remain those of lethargy and ocular paralysis, many are chiefly characterized by myoclonic movements, and sometimes by fibrillary twitchings of the abdominal muscles. Affections of the cortex of the brain are more frequently seen than in previous outbreaks; these are characterized by epileptiform convulsions, and are sometimes associated with maniacal outbursts or insomnia.

The sequelae are of both neurologic and medicolegal importance. They may appear: (1) in the course of the original acute malady and persist after partial or complete disappearance of all other symptoms; or (2) after the original acute attack has apparently terminated or possibly has passed unrecognized. Such effects are declared after a variable latent period ranging from several weeks to more than two years. No definite opinion, therefore, can be expressed until after some years as to whether an attack of acute encephalitis, however mild in appearance, may result in serious sequelae. The most important sequela is the mental condition that may supervene, and may include irritability, maniacal outbursts, and complete change in moral character and self-control. Lying and theft may appear for the first time in the conduct of the patient as well as grosser mental defects (including homicidal attacks), resulting in removal to a psychopathic

institution. These symptoms are of all grades of severity, and may be associated with nervous lesions. They are usually seen in children or in the young adult. Thus, it is possible that some instances of motiveless crime and of violent behavior are the result of this disease, and not, as might be supposed, of inherent vice.

Women in Medicine

The results of the May examination of London University are remarkable evidence of the diligence and success of women students. For the M.B., B.S. examination, which ranks first among the medical degrees of this country, there were thirty-four women out of seventy-nine in the pass list, and three out of ten in the honors list, and a woman carried off the gold medal. The first woman member has been elected to the council of the British Medical Association. She is Dr. Christine Murrell, one of the many medical women trained at the London School of Medicine for Women who have won distinction.

The Medical History of the War Completed

The official medical history of the Great War is now completed. The last of the eleven volumes, compiled under the general editorship of Major-General Sir William Macpherson, has been published. It deals with the medical services during the operations in Gallipoli, Macedonia, Mesopotamia, northwestern Persia, East Africa, Aden Protectorate and North Russia, and contains some painful passages. The volume frankly describes the tactical and strategic errors of the medical service in war areas typical of middle eastern conditions. Lack of cooperation between the combatant and medical staffs is frequently noted. The chief lesson to be learned from the study of these campaigns is the need of a close liaison between the medical administration and the general staff from the outset, and definite preparations before the campaign is begun to meet all possible contingencies.

In the Dardanelles operations, the initial failure of the medical services was due principally to a previous lack of training in combined operations, such as those at the landing on the Gallipoli Peninsula, and, especially, to a miscalculation of the extent of the opposition. The chief lesson of the campaign points to the necessity for establishing large general hospitals near the scene of operations, and for providing sufficient steamers and small craft for evacuation of sick and wounded to these hospitals. In Macedonia, the dominant feature was warfare in a mountainous country or in river valleys and ravines, hotbeds of malaria. Probably in no other theater of war did the percentage of hospital beds to the number of troops reach the proportion of one in three. The main cause was the number of cases of malaria, which are recorded as 160,601 during the years 1916, 1917 and 1918.

In Mesopotamia, the medical provisions were most deficient. The evacuation of wounded from the battle of Nasiriya was deplorably executed. With a limited personnel and stores, they were placed on board vessels which there was neither time nor labor available to clean. When the operations were begun for the relief of Kut, no strenuous effort had been made to reinforce the medical units or to prepare a plan for the evacuation of the sick and wounded. The battles of Shaikh Saad, Wadi and Hanna still remain a nightmare to all who took part in them. The wounded remained on the field of battle, and many died from exposure. Those that were collected could not be properly housed or treated. They were evacuated to the base on any boat that was available, and the staff arrangements at Basra for the disembarkation of the two reinforcing divisions were equally defective.

"Sky Shine"

It is found at the National Institute of Medical Research at Hampstead (in London) that the ultraviolet light recorded there is derived for the most part from the sky, and only to a small extent from the sun. The ultraviolet rays of the sun are nearly all scattered in passing through the atmosphere. This scattering is far more extensive in our own than in the clear Alpine sky. At midday on the Alpine heights the ultraviolet rays derived from the sun are about equal in amount to those derived from the whole sky; but when the sun is low in the heavens, the sky gives far more ultraviolet rays than the sun. Thus, it is important that buildings should be low and streets wide. Shut-in courts and high buildings not only cut off sunshine; they also reduce the amount of "sky shine."

High Tuberculosis Rate Among Boot and Shoe Operatives

At the conference of the National Union of Boot and Shoe Operatives, a resolution was carried calling for legislation to secure a reasonable standard of light, air and cleanliness in all workshops and factories used for the manufacture of boots and shoes. Mr. W. R. Smith, parliamentary secretary to the ministry of agriculture, said that the percentage of their members who died of tuberculosis up to 45 years of age was staggering. In 1910 it was 52 per cent.; in 1913 it fell to 50 per cent.; in 1914 it rose to 54 per cent.; in 1921 it was 44 per cent., but in 1923 it again went up to over 50. They were still without a proved cure for this terrible disease. That ought to indicate the desirability of concentrating on securing such changes and reforms within the industry as would reduce these figures.

PARIS

(From Our Regular Correspondent)

May 30, 1924.

The New Statute Governing the Appointment of Agrégé Professors on the Faculties of Medicine

A recent ministerial decree has brought about important changes in the conditions under which competitive examinations are held in connection with the appointment of agrégé professors on the faculties of medicine. Heretofore, a limited number of positions for agrégé professors on the various medical faculties were thrown open in a competitive contest, the examinations for which were held in Paris for all the candidates, whether they were registered for the Faculty of Medicine of Paris or for a university in the provinces.

With the introduction of the new regulations, it is no longer a question of a competitive examination. All candidates, before they can apply for positions, must submit to a preliminary examination. Those who have successfully passed this test do not thereby establish any claim to a title or to any position. Their names are simply entered on a list of those eligible for agrégé professorships. When an agrégé professorship becomes vacant, the council of the faculty of medicine chooses from this list of eligibles the most promising candidate, who is recommended to the minister of public instruction for appointment, who makes the final decision. The consultative committee of public instruction may also present the names of candidates entered in the list of eligibles.

Thus the new regulations abolish the competitive system and introduce the method of appointment by selection—from a restricted list of eligibles, it is true—but nevertheless an element of choice obtains. This marks a significant departure from established custom, for, up to the present, the system of competitive examinations has always played an important part in the medical profession in France. Externs, interns, physicians and surgeons to hospitals, preparators, heads of hospitals, agrégé professors were all appointed on the basis of competitive examinations. There was a time when the head professors themselves were selected through competitive contests. The same process of evolution that led to the

abolition of the competitive examination in connection with the appointment of the occupants of professorial chairs was bound to lead eventually to its suppression in the choice of agrégé professors.

To be sure, the competitive examination had certain advantages. It furnished a certain amount of protection against favoritism; but even here it was uncertain in its operation, for the candidate who was so fortunate as to have two or three of his instructors sitting on the examining board had a distinct advantage over those less fortunate candidates who had no protector among the judges. Then, too, the competitive examination and the preparation that it entailed gave the candidates an opportunity of developing their forensic ability, for they learned how to think clearly and to present a subject in an effective and elegant manner.

But this long preparation, which required years of effort, had the disadvantage of emphasizing unduly form at the expense of intrinsic value. To the candidates preparing for the competitive examination, these words were often quoted: "To know will mean much, but to show that you know will mean more," and they consequently spent the major portion of their time in furbishing their phrases and studying the art of condensation, so that they could present their subject in an hour in a concise and eloquent manner. This concentration of effort in one direction often resulted in weakening the thought and spirit of their productions, and in giving undue weight to dry learning at the expense of live contributions based on independent personal research.

It is to be hoped that the new regulations will bring about a change for the better. The examination that is now required will not be such a tax on the memory as the old style of examination. It will be divided into two parts. The first part consists of two written tests, which will be given by every faculty of medicine in France. Each of these test papers will be given a grade ranging from 0 to 20. Every candidate who obtains a total of 30 points or more on the two papers combined will be admitted to the second test, which will comprise: (1) the submission of a published or unpublished work for the appreciation of the examining board; (2) a lecture forty-five minutes in length after twenty-four hours of free preparation, on some subject in the candidate's chosen specialty, and (3) a practical laboratory test for candidates in bacteriology, parasitology and medical natural history, pharmacology and materia medica, pharmaceutic natural history and pharmacy. Each of the three divisions of the second part will be graded from 0 to 20. Every candidate who obtains a total of 45 points or more in the three divisions of the practical test and a total of 30 points or more in the preliminary test consisting of two papers will have his name entered on the list of eligibles for agrégé professorships without having to submit to any other examinations, competitive or otherwise. Appointments will be made by selection as vacancies occur. Nothing will prevent candidates from devoting themselves henceforth to their own personal researches, if they so desire.

Though the first two papers required may be something of a test of scholarship, it would seem that any young doctor of medicine who is well informed might hope to obtain the minimal grade required: 15 points out of 20. In the second part of the examination, memory does not play such an important part. It will be noted also that the requirement of submitting a published or unpublished work is of a nature to foster personal research.

The Rights of Opticians with Respect to Prescriptions for Glasses

In France, a distinction has generally been made between eye affections that are of a curable nature, and therefore regarded as being within the domain of physicians, and permanent congenital deformations, such as myopia and hypermetropia, and a normal impairment of vision due to advancing years, such as presbyopia, which have usually been considered as belonging to the field of opticians. However, a short time ago, the president of the Syndicat des oculistes français received a complaint in which it was alleged that the optician Odin had made a detailed examination of the eyes, in a dark-room, with the aid of instruments. The prefect of police was informed and instituted an inquiry, from which it developed that Odin was not satisfied with the efficacy of the test in which a subject is allowed to read off lines of letters of varying size on a chart but much preferred to examine the eyes by the retinoscopic method. He claimed, furthermore, for opticians the right to employ this objective method. In view of this confession and claim, the Syndicat des oculistes filed a complaint against the optician, and Dr. de Lapersonne, professor of clinical ophthalmology at the Faculty of Medicine in Paris, who was selected as an expert witness, expressed the opinion that retinoscopy was not sufficient but must be supplemented by an exploration by oblique illumination, and examinations with the binocular magnifier and the ophthalmoscope. It was his opinion also that the method of examination used by Odin had not been a normal and legal mode of investigation for a spectacle maker or optician, and that such examinations should be the exclusive privilege of oculists or ophthalmologists. The court, deciding that Odin's acts constituted illegal practice of medicine, imposed on him a fine of 500 francs, and, in addition, awarded the Syndicat des oculistes français 1,000 francs by way of damages. The decision of the court was based on the following findings:

> From the evidence of the expert witness, it appears that the objective examination of the eyes as practiced by Odin, with a view to prescribing certain glasses for a subject, constitutes an act in the practice of medicine.
>
> Congenital impairment of vision is a disease, since it necessitates a pathologic examination, a diagnosis and possibly medical treatment, which must be taken in the widest sense.

The judgment, therefore, amounts to a decision that no optician may furnish glasses other than on the basis of a medical prescription.

The Franco-Belgian Treaty Pertaining to Mutual Medical Assistance

A treaty recently entered into by France and Belgium provides that citizens of either country, while sojourning in the other, shall be entitled, when suffering from physical or mental disease, when pregnant or in labor, or when in need of help for any other cause, to medical assistance and any other form of aid, on the same basis and under the same conditions as nationals, both with respect to domiciliary and to hospital service. Furthermore, such foreign residents shall have the right to claim, under certain circumstances, monetary assistance for their families, if their families reside with them. The country of residence will bear, without reimbursement, the expense of such medical and other assistance, provided (1) as regards the entertainment, whether at home or in hostels, of aged, infirm or incurable persons, these have resided at least fifteen years in the country (only ten years' residence being required if the disability is due to an occupational disease), and (2) other persons who, on account of illness, bodily or mental, or for any other cause, have received assistance have resided five years continuously in the country. With reference to any person assisted who does not fulfil these conditions of residence, the country of origin will be under obligations, at the end of forty-five days, either to summon him back to his own country, if he is able to travel, or to reimburse the country of residence for the expenditures made in his behalf. However, for expenditures incurred by the country of residence as the result of an acute disease diagnosed as such by the attending physician, no reimbursement shall be made, unless it be for repeated attacks;

included under this head are expenditures made in behalf of lying-in women. Repatriation shall not be imposed in cases in which special assistance has been given large families and lying-in women.

The respective governments agree, in the event that large bodies of workmen from the neighboring country shall, for any reason, be collected at a given point, to see to it that adequate hospital facilities shall be provided for sick and injured workmen and their families.

The Harvard Club Fellowship Open to Frenchmen

The Harvard Club of France has established a fellowship of $1,500 to be granted to a French student who is desirous of pursuing studies at the University of Harvard during the coming school year (September, 1924, to June, 1925). Applicants for the fellowship must be under 25 years of age and must possess a good knowledge of English.

A Course in Colonial Hygiene Adapted for Future Administrators of the Colonies

The committee of the Ecole coloniale française, which has been delegated to prepare future colonial officials for their administrative duties, has decided that instruction in colonial hygiene, taken in its widest sense, shall be given at the Ecole coloniale. The committee holds that colonial administrative officials, while they cannot take the place of physicians, must, nevertheless, be in a position to collaborate constantly in the social movements launched by the public health service. In order to cooperate in this manner, they should have accurate ideas not only in regard to tropical hygiene but also relative to the proper means to employ to combat the spread of disease.

A Congress of Charlatans

How widespread *Naturheilkunde*, or naturopathy, is in Germany is well known. It was widespread also in Alsace-Lorraine under German rule, and the many adherents of this cult who have remained in this region do not seem ready to lay down their arms. Their societies *(Naturheilvereine)* recently held a congress in Mulhouse, during the course of which they complained bitterly of the hard times that members of their cult were having at present. One Kienzler, the center of whose activities is in Mulhouse, has presented to parliament a communication on social hygiene. He speaks of the rights acquired by the members of the cult who practiced before the war—of the struggle that they have been obliged to face since the introduction of the French law pertaining to the practice of medicine; of their weakness immediately after the war and of their strength today, consisting, as they do, of a thousand members. He appeals to all political parties without exception to support the demands of their society. The following resolution was passed:

The congress of the *Naturheilvereine* of Alsace-Lorraine demands, in the name of its one thousand adherents, the immediate modification of the law of Nov. 30, 1892, pertaining to the practice of medicine, so that practitioners of naturopathy of good standing, who practiced medicine before the war, may continue to enjoy under the republic the liberties that were not denied them under German rule. The congress requests that the matter be inquired into at once and asks that the president of the cabinet shall grant an audience to the delegation appointed by this congress.

Interchange of Interns

The permanent committee of the Union hospitalière du Sud-Est has requested that the hospital administrations in the university centers use their best endeavors to aid their interns of the fourth year who may desire to spend a short period in other faculty hospitals. The hospitals should make arrangements among themselves to pay the board and traveling expenses of interns taking advantage of this opportunity.

BUENOS AIRES

(From Our Regular Correspondent)

May 15, 1924.

Subtropical Diseases

Dr. G. Araoz Alfaro, president of the National Department of Public Health, has just completed an inspection of the Chaco territory and neighboring provinces. As a result, vigorous measures will be taken to combat hookworm disease, so prevalent in Chaco, Formosa, Misiones, Corrientes and Tucuman.

The same department has also sent, to survey the province of Tucuman, a committee headed by Prof. P. Muehlens of Hamburg, assisted by R. Dios, Zuccarini and Dr. Juana Petrochi, an entomologist. The results of their studies will be published in a short time.

New Hospitals

The commission on regional hospitals, headed by Dr. Cabred, has just opened a large hospital called Presidente de La Plaza at la Rioja. It has separate pavilions for medical and surgical cases and a department of tuberculosis. Dr. L. Gonzalez Lelong has been placed in charge.

Postgraduate Fellowships

Scientific leaders in this country are pleading for the creation of fellowships which will permit graduates to pursue abroad further studies of scientific subjects. It is expected that this plan will meet with approval in the United States, where other South American countries have received all kinds of facilities. The incumbents of such fellowships should be assured that, on completion of their studies, their services will be put to practical use, for research, teaching or public health purposes.

New Cancer Pavilion

Work has been started on a new pavilion to be devoted to the study and treatment of cancer in the Institute of Experimental Medicine. The new building is to be erected with the funds collected by the League Against Cancer. According to a resolution of the directing board of the medical school, the pavilion and dispensary will be named Elena Larroque de Roffo, as a tribute to the present director's wife, who died recently and was active in the work of the institution.

Hospital Extension

The plan for improving and extending the municipal hospitals of Buenos Aires has been approved. The work will be probably completed within two years, and will cost about 7,000,000 pesos ($2,110,000). Ornamentation will be minimized, in order to provide a greater degree of comfort and efficiency. The old Rawson Hospital has been closed, with the exception of the splendid model institute of clinical medicine and the pavilion of dispensaries. When rebuilt, it will have twenty-three pavilions. It is expected to be completed by the end of this year. The Ramos Mejía Hospital will be completely reconstructed. The first pavilions to be completed will be those of general surgery and special diseases. To other hospitals, additions will be made as follows: Pirovano, new services of syphilis, orthopedics and ophthalmology; Tornú, two children's pavilions, sixteen wards for tuberculous patients, offices, outpatient department, laboratory, morgue, etc.; Muñiz, two pavilions for tuberculous patients; Durant, pavilions for surgery and gynecology, laboratory, roentgen-ray department, dispensary; Piñero, clinical medicine and maternity pavilions; Alvear, two pavilions for surgery, gynecology and obstetrics.

In addition, work has been begun at Ituzaingó on the construction of ten pavilions of 100 beds each, in the colony of chronic tuberculous cases. The Salaberry Hospital will be

provided with maternity, gynecology and surgery services. The Argerich Hospital will be completely rebuilt. Additions and repairs will also be carried out at the Las Heras, Bosch, Villa Devoto and Velez Sarsfield hospitals, and the dispensaries for babies and antivenereal cases.

Child Welfare

In contrast with the gloomy picture in many provinces, the success of child welfare work in the federal capital is noteworthy. There are now eighteen babies' dispensaries, five puericulture institutes, and a wetnurses' supervision service. Last year, 24,000 children were attended, divided as follows: 57 per cent. breast fed; 23 per cent. mixed feeding, and 20 per cent. artificial feeding. The city authorities furnished 3,245,421 free rations, prepared with 481,000 liters of milk and 7,000 kg. of different foods. In addition, the Charity Society cared for 6,000 children. The results were excellent. In 1893, out of each thousand live births, 140 infants died in the first year, making a death rate of 289 per thousand total deaths. In 1923, the death rate was 78 per each thousand live births and 140 per each thousand deaths. With a population three times as large, infant mortality is much smaller than thirty years ago. Unfortunately, the birth rate has also decreased from 36 in 1911 to 24 per thousand. It is estimated that the child welfare services have already examined about two thirds of children of workingmen.

Personal

Much regret is felt over the death of Mrs. Celina Maturana de Araoz Alfaro, wife of the president of the national public health department.——The lectures given by Professor Castex and G. Bosch Arana at Rome, Paris and Madrid have been very successful.——Prof J. M. Jorge attended the French Medical Congress and was appointed a member of the French Orthopedic Society.——Dr. Bazán has been appointed chief of the school section of the national department of public health.

ITALY

(From Our Regular Correspondent)

June 4, 1924.

International Convention for the Study of Cancer

A meeting of the technical committee of the Health Committee of the League of Nations was held recently in Rome for the study of cancer from a demographic and hygienic standpoint. During its session, Prof. Gaetano Fichera, director of the surgical pathologic institute of the University of Pavia, was requested by the Italian National Federation for the Combating of Cancer to deliver a lecture on the results of his individual research on cancer.

Award of Prizes by the Royal Academy of Sciences

The Accademia dei Lincei, founded at Rome in 1603, announced recently its award of prizes for the year 1924, bestowing (among others) the prize offered by the king of Italy on Professor Solazzi of the University of Pavia, and the Santoro prize, in the field of medicine, on Professor Fichera, also of the University of Pavia.

Twelfth Meet of the International Federation of Athletes

From May 26 to June 2, simultaneously with the holding of the Olympic games in Paris, the twelfth meet of the international federation of athletes was held in Florence, and was attended by some 16,000 athletes from Italy, France, Belgium, Switzerland, Luxemburg and the Italian and French African colonies. More than 200 athletic events were scheduled and carried out. The contests were planned more as a test of team work than of the prowess of individual athletes. More than a thousand prizes were awarded, many of which were given by Italian royalty, Prime Minister Mussolini and other ministerial heads. The meet took on particular importance from a hygienic and social point of view, as it was the first meet of the kind that has taken place in Italy, and furnishes conclusive evidence of the rapid development of interest—especially since the war—in physical education and what has been termed "premilitary training," which contribute so much toward the development of a strong, healthy body.

The Sixth Congress of Industrial Medicine

The sixth Congress of Industrial Medicine has just been held in Venice. The subject that was the center of interest was the care and protection of sick working men and women. Interesting papers were presented on the topics, "The Prenatal Care of Expectant Mothers of the Laboring Class, in Health and Disease," and "The Changed Views in Regard to Avoidance of Motherhood."

BERLIN

(From Our Regular Correspondent)

May 31, 1924.

Von Weninger's Inhalation Treatment for Pulmonary Tuberculosis

In answer to a number of inquiries from the United States in regard to a tuberculosis remedy that a certain Dr. von Weninger is using in Minnesota and in other states, allow me to contribute what information I have in the matter. I note that in the circular advertising the remedy, Dr. von Weninger is referred to as a "well known German physician," and that Professor Dührssen is said to have reported recently on the remedy in a German medical journal. According to my sources of information, von Weninger does not reside in Germany but comes from Rio de Janeiro. Last year he spent some time in Berlin and gave his treatment for pulmonary tuberculosis to a few patients. In July, 1923, Professor Dührssen discussed one of his cases before the Berlin medizinische Gesellschaft, and a report was published in No. 30 of the *Medizinische Klinik*. During the discussion, Dr. Dahmer, a physician of Berlin, gave his experience with the new method of treatment. Nothing further is known in Germany about the matter. So much for the historical facts; as for the remedy itself, what Professor Dührssen reported is characteristic of the writer; according to his statements, it is said to be of a chemotherapeutic nature. "During the course of twenty-three years of research work, the inventor of the remedy prepared, tried out and rejected 173 different remedies." The remedy in question is designated as "Weninger 174," and contains "uranium, thorium, manganese and certain acids." According to Dührssen, there is produced "through the interaction of these and other less important substances a new substance, which is called by von Weninger 'ektoplasmin,' because it has the capacity to penetrate the waxlike outer covering of tubercle bacilli and to neutralize their poisonous action." It was alleged that, through daily inhalation of 50 gm. of the Weninger solution, wonderful cures had been accomplished. The woman whom Dührssen presented before the medical assembly was said to have been completely and permanently cured in 1913 through twenty-four inhalations during a period of four weeks, although she had previously returned in a precarious condition from the tuberculosis retreat in Görbersdorf. It must be admitted that Professor Dührssen's unfounded endorsement of the remedy is more surprising than the reported miraculous cure. It is more readily understood, however, when it is recalled with what zeal this same gynecologist entered the lists and defended the "absolutely certain action" of Friedmann's tuberculosis remedy, not only in medical journals but also in the daily press, and in what enthusiastic terms he lauded the genius of Friedmann before all the world.

Standardization of Dosage in Roentgen-Ray Treatment

The most important result of the meeting of the Deutsche Roentgengesellschaft, held in Berlin, April 27-29, is the decision to introduce an exactly defined unit of measure to designate what shall constitute the unit of dosage in roentgen irradiations. The unit of measure adopted is "1 roentgen." Although, in the science of electricity, definite units of measure were agreed on many years ago; for example, "ampere" for the unit employed in measuring the strength of an electric current, in the field of roentgen-ray measurement a multiplicity of "units" has existed; for instance, "1 Fürstenau" (1 F) or "1 Holzknecht" (1 H), which were measured with different instruments and which had the additional disadvantage that it was extremely difficult and uncertain to express one unit in terms of the other, because of the great variation in the quality of the rays. The estimation of the biologic effect of roentgen rays and of the sensitiveness of new growths to roentgen rays was rendered much more difficult by the fact that, owing to the confusion in the units of measurement, great uncertainty existed whether identically the same irradiation had been given in all cases. It was likewise difficult to reproduce in other places the kind of irradiation described in a given place, so long as there was no uniform measurement of dosage. A committee appointed by the Deutsche Roentgengesellschaft for the standardization of the unit of roentgen-ray measurement has now reported its recommendations for the practical introduction of the new dosage unit. The Physikalisch-Technische Reichsanstalt in Berlin, which is the central bureau of standard weights and measures, has established a dosimeter of normal standard consisting of a compressed-air ionization chamber, the constancy of which is carefully controlled. Standard measuring instruments are manufactured in accord with this dosimeter, and are deposited in laboratories conveniently distributed throughout the country (Göttingen, Bonn and Stuttgart). It is then the duty of these district laboratories to see to it that all medical dosimeters in their respective districts are gaged in accordance with the new roentgen unit, in order that all statements in regard to dosage may be based on a uniform standard. In this way the physician will be enabled to figure out in advance just what biologic effect he can expect from each irradiation. Since it can be stated with reference to the usual roentgen irradiations just how many roentgen units are required to produce a skin burn, this decision of the Deutsche Roentgengesellschaft constitutes an extremely important measure for the prevention of accidents in the treatment of patients.

Marriages

LORETTA KATHERINE MAHER, Chicago, to Major Jay Leland Benedict, U. S. Army, at River Forest, Ill., June 14.

HORACE GRAHAM CAMPBELL, Exeter, Calif., to Miss Alpha C. Johnson of Twin Valleys, Minn., May 3.

YON CHAN YOUNG, Honolulu, Hawaii, to Miss Rita J. Waldron of Boston, in June.

LOUIS GINSBURG, Johnstown, Pa., to Miss Esther A. Kramer of Newark, N. J., June 22.

KENNETH T. KNODE, Philadelphia, to Miss Florence Blough of Goshen, Ind., recently.

GEORGE A. TELFER, Hillsboro, Ill., to Miss Blanche Duvall of Springfield, June 14.

KEENAN CASTEEN, Mayodan, N. C., to Miss Pearl Roberts of Charlotte, May 31.

GEORGE M. JONES to Mrs. Annie Joe Martin, both of Smithville, Texas, in June.

MALCOLM CAMPBELL, Malvern, Iowa, to Miss Lillian Kruse of Mineola, June 3.

HENRY L. SHERMAN to Miss Grace Freeman, both of New York, June 29.

Deaths

Harvey Russell Gaylord, Buffalo; University of Pennsylvania School of Medicine, Philadelphia, 1893; professor of surgical pathology at the University of Buffalo, 1899-1906; member of the Medical Society of the State of New York; past president of the American Association for Cancer Research; director of the State Institute for the Study of Malignant Diseases since 1899; on the staffs of the Erie County, the Children's, the Buffalo General and the German hospitals; served in the M. C., U. S. Army, during the World War; aged 51; died in June, at a sanatorium in Watkins.

Ernest Bryant Hoag ⊕ Los Angeles; Northwestern University Medical School, Chicago, 1902; lecturer in criminology at the University of California, Berkeley, and the University of Southern California, Los Angeles; formerly city bacteriologist, medical director of the city schools and the Throop Polyclinic Institute, Pasadena; psychiatrist to the Los Angeles Juvenile Court; author of many popular books on nervous and mental diseases; aged 56; died suddenly, June 11, of angina pectoris.

Carlos C. English, Booneville, Ark.; University of Kansas School of Medicine, Rosedale, 1908; member of the Missouri State Medical Association; on the staff of the Arkansas Tuberculosis Sanatorium, Booneville; formerly superintendent of the Missouri State Sanatorium for the Treatment of Incipient Tuberculosis, Mount Vernon; aged 45; died, April 12, at St. Joseph's Hospital, Kansas City, Kan., of heart disease.

Pontenciano Carrillo Gauzon ⊕ Manila, P. I.; Rush Medical College, Chicago, 1908; professor of surgery and chief of the department, University of Philippines College of Medicine and Surgery, Manila, since 1917; vice president of the Philippine Island Medical Association; on the staffs of the Philippine General and St. Paul's hospitals; aged 42; died, March 24, at Baguio.

Benjamin Harvey Ogden, St. Paul; Hahnemann Medical College and Hospital of Philadelphia, 1885; member of the Minnesota State Medical Association; formerly professor of obstetrics at the University of Minnesota Medical School, Minneapolis, and on the staffs of the Ancker, Miller, St. Luke's and St. Joseph's hospitals; aged 64; died, June 12.

William Milton Van Zandt, New York; New York Homeopathic Medical College and Hospital, New York, 1900; member of the New York Academy of Pathological Science; on the staffs of the Broad and Community hospitals; aged 48; died, June 8, of heart disease and cerebral hemorrhage.

John W. Clifton, Smyrna, Del.; University of Pennsylvania School of Medicine, Philadelphia, 1875; member of the Delaware State Medical Society; also a druggist; for thirty years member of the city board of health; aged 71; died, June 9, at the U. S. Naval Hospital, Annapolis, Md., of uremia.

Pierre Fortunat La Chance, St. Boniface, Man., Canada; University of Montreal (Que.) Medical Faculty, 1904; formerly superintendent of St. Boniface Hospital; at one time member of the city council and mayor of St. Boniface; aged 46; died, March 31, following a long illness.

Henry Goodwin Webster ⊕ Brooklyn; Medical Department of Columbia College, 1895; past president of the Brooklyn Pathological Society; formerly police surgeon and on the staffs of the Brooklyn and the Methodist Episcopal hospitals; aged 54; died, June 19, of heart disease.

Clemens Klippel ⊕ Hutchinson, Kan.; Rush Medical College, Chicago, 1885; formerly president of the Kansas Medical Society and the Reno County Medical Society; on the staff of St. Elizabeth Mercy Hospital, where he died, June 9, of cerebral hemorrhage, aged 72.

Joel Brundige Taylor, Marion, Ohio; Starling Medical College, Columbus, 1881; member of the Ohio State Medical Association; Civil War veteran; formerly on the staff of the Marion County Children's Home; aged 82; died, June 14.

Oscar Luman Ramsdell, Petoskey, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1893; member of the Michigan State Medical Society; aged 60; died, June 12, at the Butterworth Hospital, Grand Rapids.

Christopher Columbus Morris ⊕ St. Louis; University of Missouri School of Medicine, Columbia, 1884; on the staff, and at one time superintendent, of the St. Louis Baptist Hospital; aged 65; died, June 9, at Battle Creek, Mich.

⊕ Indicates "Fellow" of the American Medical Association.

James F. Ginn, Elwood, Ind.; Physio-Medical College of Indiana, Indianapolis, 1886; member of the Indiana State Medical Association; for ten years city health officer; aged 69; died suddenly, June 10, of heart disease.

Joseph Charles Ohlendorf, Mount Rainier, Md.; Baltimore University School of Medicine, 1893; member of the Medical and Chirurgical Faculty of Maryland; aged 62; died suddenly, June 11, of heart disease.

Robert Loura Mount ✠ Polo, Mo.; Ensworth Medical College, St. Joseph, 1891; formerly county coroner and county physician; aged 56; died, June 11, at the Christian Church Hospital, Kansas City.

William Hamilton Merritt, St. Catharines, Ont., Canada; Trinity Medical College, Toronto, 1888; L.F.P. & S., Glasgow, Scotland, 1888; formerly mayor of St. Catharines; aged 58; died, April 22.

Pope Barrow Crumbley, Leesburg, Ga.; Medical Department of the Tulane University of Louisiana, New Orleans, 1910; aged 41; died, June 8, at the Phoebe Putney Memorial Hospital, Albany.

Josiah C. Morrison, Chesapeake, Ohio; Baltimore (Md.) University School of Medicine, 1896; member of the Ohio State Medical Association; aged 63; died, June 1, of cerebral hemorrhage.

Jerome Walker, Brooklyn; Medical Department of Columbia College, New York, 1868; member of the Medical Society of the State of New York; Civil War veteran; aged 79; died, June 19.

David Benjamin Bundy, Jr. ✠ Middleton, Ohio; Miami Medical College, Cincinnati, 1882; aged 65; died in June, in Los Angeles, of injuries received in an automobile accident.

Frederick Marschner Hahn, Hastings, Neb.; University of Illinois College of Medicine, Chicago, 1915; aged 32; died, June 1, in Omaha, of a self-inflicted wound.

Alexander Read Mitchell, Kansas City, Mo.; University Medical College of Kansas City, 1895; formerly coroner of Clinton County; aged 53; died, June 7.

Joseph Eugene Britton, Decatur, Iowa; New York Homeopathic Medical College, 1884; member of the Iowa State Medical Society; aged 63; died, May 9.

Franklin Jacob Bomberger, Mapleton, Minn.; University of Minnesota Medical School, Minneapolis, 1902; aged 58; died, June 12, following a long illness.

J. J. Fisher, Portland, Ore. (years of practice); formerly member of the state legislature and city council; Civil War veteran; aged 83; died, May 17.

John Wesley Mercer, Washington, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1890; aged 71; died, June 4, following a long illness.

George Robert Fegan ✠ Crete, Ill.; Rush Medical College, Chicago, 1900; aged 58; died, June 11, at St. Mary's Hospital, Rochester, Minn.

Anders (Daae) Doe, Chicago; University of Christiania, Norway, 1878; aged 72; died, June 14, of heart disease and diabetes mellitus.

Charles Douglas Lockyer, Buffalo; Victoria University Medical Department, Toronto, Ont., Canada, 1889; aged 64; died, April 4.

D. A. Pettigrew, Logansport, Ind.; Indiana Medical College, Indianapolis, 1873; aged 73; died in June, following a long illness.

Albert W. Hinman, Dundee, Ill.; Chicago Homeopathic Medical College, 1879; aged 79; died, June 16, at DeKalb, of heart disease.

Hull M. Black, Wakefield, Ill.; Chicago College of Medicine and Surgery, 1910; aged 50; died, June 14, of cerebral hemorrhage.

Jesse Wakefield Rucker, Greensburg, Ind.; Medical College of Ohio, Cincinnati, 1887; aged 60; died, June 13, of heart disease.

Fletcher R. McGinnis, Galena, Kan. (licensed, Kansas, 1901); Civil War veteran; aged 79; died, June 8, of peumonia.

Irving S. Edsall ✠ Middleville, N. Y.; Albany Medical College, 1885; aged 65; died, May 19, of cerebral hemorrhage.

John N. Nicks, Powe, Mo.; American Medical College, St. Louis, 1880; aged 74; died, June 9, of bronchopneumonia.

William Francis Jacobs ✠ Chicago; Rush Medical College, Chicago, 1897; aged 53; died, June 17, of pneumonia.

George Hatton, Harveysburg, Ohio (licensed, Ohio, 1896); aged 99; died, April 20, in Cincinnati.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

PURIFICO

The Federal Authorities Debar a Cancer Cure Fraud from the Mails

One Eleanor Elizabeth Howe, who was graduated by the New England Female Medical College in 1867, married a preacher by the name of Burnside in 1871 and about 1881 began the manufacture of an alleged cure for cancer known as "Burnside's Purifico Nos. 1, 2 and 3." In 1903 the daughter of this woman, Mrs. C. W. Diffin, took over the Purifico business and, with her husband, conducted it under the name of the Purifico Company. This trade name was employed until about September, 1920, at which time the name of the business was changed to "C. W. Diffin" and "C. W. Diffin Manufacturing Chemist," at Buffalo and Ashville, New York.

In 1910 or 1911, the Purifico Company did business from Forestville, N. Y., and, apparently, conducted a concern known as the Forestville Sanitarium where the nostrums were employed.

In November, 1917, the Diffins, doing business as the Purifico Company, were charged by the government with

Letterhead used by the Purifico Company before the owners—C. W. and P. B. Diffin—were prosecuted for fraudulent claims under the federal Food and Drugs Act.

violating the federal Food and Drugs Act in shipping their nostrum. The charge was specifically that the claim that Purifico was an effective remedy for cancer and other conditions was false and fraudulent. The two Diffins pleaded guilty.

On May 1, 1923, C. W. Diffin was called on to show cause on June 15, 1923, why a fraud order should not be issued against himself and the Purifico Company. Diffin appeared on the dates set accompanied by his attorney Samuel J. Fowler of Jamestown, N. Y., and after the introduction of evidence on behalf of the government Diffin was granted a continuance first to June 21 and later until July. On July 6, Diffin's brief was filed with the statement that the firm of Whitman, Ottinger and Ransom, attorneys of New York City, had been retained in the case. This firm applied for and obtained further continuances and action was not definitely taken on the case until June 6, 1924, at which time a fraud order was issued against the Purifico Company and C. W. Diffin of Buffalo and Ashville, N. Y., and Bridgeburg, Ontario, Canada.

A memorandum for the Postmaster-General detailing the case against this fraud and recommending the issuance of a fraud order was prepared by Judge Edgar M. Blessing, Solicitor for the Post Office Department. From this memorandum we learn that Purifico was compounded and bottled by Diffin in a small building that was formerly a stable and was not equipped with either sewer or water connections nor screened from flies. The government obtained specimens of the nostrums through test correspondence and submitted the products to the Bureau of Chemistry of the United States Department of Agriculture for analysis. A detailed report of Dr. L. F. Kebler of the Bureau who is the chemist in charge of special collaborative investigations is given in Judge Blessing's memorandum. According to Dr. Kebler's report,

"Purifico No. 1" was a water-alcohol-sugar mixture of cinchona, plant extractives, a vegetable laxative and potassium iodid. "Purifico No. 2" was a water-alcohol mixture of cinchona, plant extractives and potassium iodid; in other words, the only difference between Purifico No. 1 and No. 2 was the presence of a plant laxative in the former. "Purifico No. 3" was found to be a water-alcohol-sugar mixture of plant extractives, including valerian.

THE USE OF TESTIMONIALS

It was brought out at the hearing that Diffin had pleaded guilty to making false and fraudulent claims for "Purifico" and Diffin testified that after his experience with the federal Food and Drugs Act he had eliminated all claims from the labels of his medicine and had substituted therefor a number of sworn testimonials to take the place of the assertions previously made by Diffin himself. This meant, in other words, that Diffin thought that he could avoid responsibility by letting deluded testimonial givers do his lying for him. Judge Blessing's memorandum says on this point:

"The evidence in this case further shows that this respondent is selling his preparation through the mails upon representations contained in testimonials sent to him by persons who have used the medicine. In this manner he has adopted as his own statements contained in testimonials, and he cannot escape responsibility for the dissemination of such statements. He claims that he can print and distribute statements of users of the medicines for the sole purpose of inducing others to purchase them without accepting responsibility for the truth or falsity of those statements. His efforts to escape responsibility in this manner show his lack of good faith."

"Mr. Diffin testified with reference to the value he places upon testimonials as follows:

Well, I think that in using their testimonials I am certainly using what to me is the best form of advertising I know of.

"In a long prepared statement read in evidence Mr. Diffin stated:

It is my present practice to use only such testimonials as have been sworn to before a notary, although this is done merely for the added conviction upon those who are skeptical of all testimonials.

"From the foregoing it will be seen that Mr. Diffin has a very high regard for testimonials as business getters. The evidence indicates that he has not sufficient confidence in the medicine to himself recommend it as a cure for cancer and the other serious conditions enumerated herein, but he is willing to sell his preparations on such representations contained in testimonials which he distributes."

In discussing the value of testimonials as scientific evidence the Solicitor's memorandum goes on to state:

"This office has had a great deal of experience with testimonials furnished by well-meaning though ignorant laymen as to the value of medicines purchased through the mails. The unreliable character of such statements has been repeatedly demonstrated. One of the most worthless preparations that has ever been made the basis of a fraud order, that of Professor Samuels of Wichita, Kansas, who sold through the mails a preparation consisting of a little sugar and salt in water, was offered to the public almost exclusively through testimonials of persons who believed that they had been cured of almost every known disease and condition from bow-legs and flat feet to Bright's disease and diabetes. Blind persons actually appeared here in one case and testified that they believed they were growing new eyes by means of a 'vegetable compound' consisting of olive oil, water and alcohol. That, too, was a 'secret' herb remedy principally recommended as a cure for cancer in all its forms."

After going over all the evidence in the case, Judge Blessing notified the Postmaster-General that he found that the pretenses, representations and promises under which Purifico was offered for sale through the mails were false and fraudulent and he, therefore, recommended that a fraud order be issued against C. W. Diffin Manufacturing Chemist, C. W. Diffin and the Purifico Company. The order was issued and on June 6, 1924, the United States mails were closed to this fraud.

Correspondence

"IRRADIATION AS A POSSIBLE TREATMENT OF THE DENTAL ROOT 'ABSCESS'"

To the Editor:—Dr. Bloodgood's letter in the June 7 issue of THE JOURNAL is of especial interest to me. For one year, from September, 1921, to September, 1922, I conducted a series of experiments on the roentgen-ray treatment of root abscesses. The results were so good that they were gathered together and published under my name in the *Dental Cosmos*, November, 1922. In that article I described the technic used and the results. The method was tried in about fifty cases. At that time I suggested experimentation along similar lines by other men with the hope that a real cure for dental abscesses might be found.

I am glad to see Dr. Bloodgood's letter and welcome his suggestion for other reports on this subject.

LOUIS H. LEVY, M.D., New Haven, Conn.

To the Editor:—The report of Bloodgood (THE JOURNAL, June 7), setting forth the improvement in a "possible large dental abscess" following the use of the roentgen ray, is interesting and merits full investigation. It is difficult to understand, however, how such practice can afford the hope of safely retaining the teeth. The clinical history and roentgenographic evidence offered by Bloodgood do not suffice to determine the etiology of the particular lesion treated. Dental abscesses are due usually to death of the pulp following caries leading to infection. Also, pulps may die in perfectly sound teeth as the result of trauma. There is, moreover, the possibility of a blood-borne infection carried from a distant focus. The presence of other dead teeth in the mouth would be very suggestive in such circumstances. Finally, pyorrheal abscesses frequently cause areas of rarefaction, as described in the report. It is essential in every instance to know which of the causes mentioned is the factor of importance. It is also highly essential to know whether the tooth is vital, and all these factors should be considered in ruling out malignancy.

From the size of the area of rarefaction described by Bloodgood, it could be presupposed that the pulps of the teeth were dead and the radicular periosteum involved, leaving the cementum unprotected and necrotic. If such a condition exists, the dentin becomes a dead, foreign body in which reinfection is bound to occur sooner or later in a greater or lesser degree, and the patient retains a focus of infection.

Cases similar to the one described by Bloodgood not infrequently show exactly the same improvement when the abscess is drained without irradiation. There is no reason to believe that the roentgen-ray treatment as reported would maintain the sterility of the dead dentin for any length of time. Following drainage or the probable inhibition of bacterial development after irradiation, we should naturally expect the bone to fill in because of the good blood supply and the efficient mechanism for repair. Not so with the tooth, because, with its pulp gone and its periosteum involved, its blood supply is forever gone and it is in every sense dead. And though in a certain percentage of cases there might not be an exacerbation of the severe local symptoms, there remains the great probability of insidious damage from the focus of infection. Hence it is far safer to remove the teeth.

Bloodgood's suggestion that, in the removal of such teeth, a flap be laid back and sufficient bone removed to permit thorough inspection of the cavity is not new, but is most decidedly correct. Nothing could be worse than merely to "pull" such a tooth, and worse still would it be to attempt curettement blindly down an inaccessible socket.

As to the value of irradiation for the cure of dental abscess, in one case under the care of a confrère the patient was undergoing roentgen-ray treatment for a malignancy in the throat. At the same time a dead tooth showing apical rarefaction in the roentgenogram was irradiated, but without success, and subsequently was removed.

ROBERT BURNS, JR., D.D.S., San Francisco.

To the Editor:—Some points mentioned in Dr. Bloodgood's recent communication require comment.

The differential diagnosis of inflammatory conditions producing areas of bone destruction about root apexes of teeth does not present difficulty to one thoroughly familiar with pathologic conditions of the teeth so frequently as Dr. Bloodgood's letter would indicate. The presence or absence of response of the teeth involved to tests for pulp vitality (heat, cold, electricity) is one important factor not mentioned by him. Careful reading of properly made roentgenograms in conjunction with the clinical examination will differentiate inflammatory conditions from tumors and cysts in a great majority of cases. In the presence of infected dead dental pulp tissue, practically always found in cases of inflammatory bone destruction about tooth apexes, no amount of irradiation, cautery or surgical treatment directed to the bone lesion alone will bring about a permanent cure, unless the source of infection in the pulp canal or the necrotic tooth structure be removed also.

In the case described by Dr. Bloodgood, the absence of clinical data as to the state of vitality of the pulps of the teeth involved casts grave doubt as to whether he was dealing with a dental "abscess." The favorable influence of irradiation without any treatment of the teeth themselves would point to a tumor of some kind, in which the vitality of the tooth pulps had not yet been impaired.

Dr. Bloodgood somewhat loosely employs the term "dentigerous cyst" in enumerating the conditions producing destruction in the center of the lower jaw "which are impossible to distinguish by the roentgenogram or any other method of examination." A dentigerous cyst is a tooth-bearing cyst, i. e., one containing within its cavity an unerupted tooth, which can almost invariably be diagnosed by the roentgen ray, and is totally different clinically and roentgenologically from the dental root "abscess." On the other hand, the dental root cyst is like a dental root "abscess" or "granuloma" in that it practically always is connected with the apex of a pulpless tooth, but roentgenologically can be distinguished by its very clearly defined outline and wall of condensed bone. Irradiation may be of value in clearing up dental root "abscesses" with preservation of the teeth, but only in conjunction with proper attention to the root canals of the affected teeth. The cautery is, of course, a very valuable means of treating new growths of the jaw bones; but, before employing it, one should be sure that the condition is a new growth and not an inflammatory lesion dependent on infection from the dental pulp.

ROBERT H. IVY, M.D., Philadelphia.

CIRCULATION IN VARICOSE ULCER

To the Editor:—I was much interested in the short notice of Dr. Morris Kahn on "A Method of Improving Circulation in Varicose Ulcers" (THE JOURNAL, May 3, 1924, p. 1442). I must point out, however, that the process described is merely a crude form of the manual treatment of ulcers and war wounds, the technic for which was described by me in the *New York Medical Journal* **93**:978, 1911; *Medical Press and Circular* **99**:291, 1915, and the *Practitioner* **100**:491, 1918, all recently reprinted in my "Collected Papers on Mechano-Therapeutics," 1924. Even massage pure and simple has been described in medical literature as a treatment for ulcers, at intervals during the last thirty years.

EDGAR F. CYRIAX, M.D., London, England.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CELLASIN

To the Editor:—Will you investigate the products exploited in the enclosed circulars, and report the findings? A circular or column in THE JOURNAL indicating that physicians of standing may best avoid the use of samples and products of unknown value would assist in stopping the administration of these products by our members. Many of these venders of proprietary drug preparations send samples to the physician for years, and then advertise to the laity and sell such products as Pa-pay-ans (Bell).

F. M. W., M.D.

ANSWER.—With this letter was received a circular for Cellasin, marketed by the Cellasin Company, Buffalo. Cellasin, then marketed by another firm, was reported on by the Council about fifteen years ago. It was submitted to the Council with the claim that it was a ferment absorbed unchanged into the tissues, that it cured diabetes mellitus, and that it cured tuberculosis and established immunity against this disease. The Council's report on Cellasin at that time brought out that the claims were unwarranted and that it contained, not a ferment, but a spore-producing bacterium which splits sucrose largely into lactic acid.

Our correspondent sent also a circular headed, "For Endocrine Therapy," which bears the name of R. A. White, Los Angeles, and Cal. Endocrine Foundation Laboratories, Long Beach. This advertises "Asthma Sero," "Antitoxoid in Tuberculosis," "Rheumatism Sero," "Nephro Sero," "Pneumonia Sero," "Abcess Sero," "Tabes Sero" and "Malnutrition Sero." In connection with each product appear words, which, if read hurriedly, might be taken by some as a statement of composition. For instance, "Antitoxoid in Tuberculosis" is said to contain "Orcho-plasm, Thyroid Extract and Phospоro-Iodide." "Rheumatism Sero" is said to contain "Orcho-plasm and Thymus Iodide." The circular contains the vague statement that orcho-plasms are compounds that "represent unchanged protoplasm and serologic organic and inorganic substance." It contains also the unenlightening statement that "The Inorganic Substances in the Seros are in form Physiological Solution." The circular wisely makes no attempt to define "phospоro-iodide" and "thymus iodide." We have no specific information in regard to the "Sero" preparations, but the advertising propaganda should enable physicians correctly to estimate them.

KARELL DIET—UREA NITROGEN TEST

To the Editor:—1. Will you please tell me what the Karell diet is? 2. Also, what is the urea nitrogen test?

JOSEPH HALTON, M.D., Sarasota, Fla.

ANSWER.—1. Karell recommended the extensive use of milk as a diet for the treatment of asthma, malnutrition, some diseases of the liver, dropsy, and neuralgia of intestinal origin. Dorland refers to this treatment as the "Karell cure." Those who have used it extensively advise that skimmed milk be used, and that it be fresh, not boiled. Hutchison says that at first not more than from 2 to 6 ounces should be given at regular intervals of three or four hours, none being given at 4 a. m. The milk should be sipped, and given either warm or cold. The quantity at each feeding may be increased by the third day to half a pint, so that, in all, 3 pints is consumed. By the end of the week, the total may have risen to 6 pints a day, but one should not attempt to go much above this. The "cure" should last five or six weeks.

2. The methods for the determination of urea are separable into those useful for purely clinical purposes, and those for the more exact metabolic work. A urea estimation is worthless, says Webster, unless performed in conjunction with the total nitrogen. However, many practitioners believe in the importance of urea as an indicator of systemic activity and excretion, and they usually employ for their determination

the Knop-Hüfner method. The principle of this method is the decomposition of urea by means of sodium hypobromite and the measurement of the nitrogen evolved. The instrument employed in the test is the Doremus ureometer, which is graduated so that the number of milligrams of urea in 1 c.c. of urine used in the test is directly read off instead of the number of cubic centimeters of nitrogen formed in the reaction. As 0.01 gm. of urea in 1 c.c. of urine represents 1 gram per hundred cubic centimeters, the tube furnishes directly the percentage values of urea. The tube is filled with a solution of sodium hypobromite made by adding 1 c.c. of bromin to 40 c.c. of 20 per cent. cold sodium hydroxid solution. The hypobromite solution decomposes on standing, and should be made fresh every day or two. After the tube has been filled with this solution, 1 c.c. of urine is carefully run in by means of a curved pipet, and as soon as the evolution of gas ceases, the amount of urea is read off directly from the calibrations of the tube. The more accurate methods for urea estimations will be found in books on diagnostic methods:

Webster: Diagnostic Methods, Philadelphia, P. Blakiston's Son & Co.
Folin: Laboratory Manual of Biological Chemistry, New York, D. Appleton & Co.
Todd: Clinical Diagnosis by Laboratory Methods, Philadelphia, W. B. Saunders Company.

COPPER TREATMENT OF CANCER

To the Editor:—I enclose a pamphlet just received from the Anglo-French Drug Company. According to my best information and to authorities, the "copper cure of cancer" has been extensively tried in the past and found wanting. Please note the peculiar sentences in this composition and the quackish claims advanced for the product it advertises. Inquiry shows that all physicians in the metropolitan district of New York have received these circulars in the past week. Would it not be well to detail some comment anent them in THE JOURNAL?

ALBERT GROVES HULETT, M.D.

ANSWER.—The pamphlet sent is entitled "The Medical Treatment of Cancer. Cuprase. Chemical colloidal copper."

A report of the Council on Pharmacy and Chemistry on "Cuprase" was published in THE JOURNAL in 1919 (April 12, p. 1095); it is reprinted in The Propaganda for Reform in Proprietary Medicines, Volume 2. In this report the Council describes the claims advanced for Cuprase as those commonly made for "cancer 'cures,'" and holds that these could not be too strongly condemned. The Council contrasted the loose statements of the Cuprase advertising with the results reported by Richard Weil (THE JOURNAL, Sept. 27, 1913, p. 1034; April 17, 1915, p. 1283). Weil studied the effects of colloidal copper on malignant tumors in man, and was unable to find that it had any therapeutic value. In concluding its report, the Council declared the claims made by the Anglo-French Drug Company for Cuprase to be extravagant and cruelly misleading.

"SENSITIVITY TO ADHESIVE TAPE"

To the Editor:—The case of sensitivity to adhesive tape reported in Queries and Minor Notes (THE JOURNAL, June 21) is a duplicate of two cases I have had within a year or two, both of which reacted in the same way except for the fact that one of the patients, instead of having small blisters, had large blisters. In neither case was the sticking plaster strapping applied too tightly or under too great tension. Both patients were women, and they told me after the accident had happened that their skin always reacted that way to sticking plaster. They had not only a marked vesicular dermatitis but also considerable swelling of the whole lower extremity up to the knee. They had to go to bed at least a week or ten days with boric acid ointment dressing before the condition cleared up. There was a certain amount of pain and sensitiveness which was very uncomfortable. Both women were blondes. Whether their skin is more sensitive to adhesive plasters or not I do not know. In both instances the Johnson & Johnson Zinc Oxide Tape was used. I make it a practice now before applying sticking plaster to patients to inquire whether they know of any idiosyncrasy to its use that they may have.

JAMES WARREN SEVER, M.D., Boston.

NOTE.—Several other communications describing similar cases of sensitivity have been received, indicating that the condition is not an uncommon one.—ED.

DIAGNOSIS OF MALARIA

To the Editor:—In your opinion, what substantiates a diagnosis of malaria? In other words, is it proper to tell a patient he is "full of malaria" when he has only a coated tongue without chills or fever? Is there such a thing as "chronic malaria" when the blood stream is negative and the symptoms vague and indifferent?

E. K. DISNEY, M.D., Pleasure Ridge Park, Ky.

ANSWER.—The diagnosis of malaria is final only after demonstration of malarial parasites in the blood. A patient designated as "full of malaria" when the blood is negative and the symptoms "vague and indifferent" is not receiving proper and adequate medical care.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, July 8. Chairman, Dr. S. W. Welch, Montgomery.

CALIFORNIA: San Francisco, July 7-10. Sec., Dr. Charles B. Pinkham, 908 Forum Bldg., Sacramento.

CONNECTICUT: Hartford, July 8-9. Sec., Regular Board, Dr. Robert L. Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, July 8. Sec., Homeopathic Board, Dr. Edwin C. N. Hall, 82 Grand Ave., New Haven; Sec., Eclectic Board, Dr. James E. Hair, 730 State St., New Haven.

DISTRICT OF COLUMBIA: Washington, July 8. Sec., Dr. Edgar P. Copeland, Apt. 104, Stoncleigh Court, Washington.

HAWAII: Honolulu, July 14-17. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

INDIANA: Indianapolis, July 8-10. Sec., Dr. William T. Gott, No. 333 State House, Indianapolis.

MAINE: Augusta, July 15-16. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, July 8-10. Sec., Dr. Charles E. Prior, Room 144, State House, Boston.

NEW MEXICO: Albuquerque, July 14. Sec., Dr. W. T. Joyner, Roswell.

OKLAHOMA: Oklahoma City, July 8-9. Sec., Dr. J. M. Byrum, Shawnee.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 8-12. Sec., Dr. George Becht, Harrisburg.

SOUTH DAKOTA: Sioux Falls, July 15. Director, Division of Medical Licensure, Dr. H. R. Kenaston, Bonesteel.

WASHINGTON: Olympia, July 8. Sec., Mr. Wm. Melville, Olympia.

WEST VIRGINIA: Martinsburg, July 8. Sec., Dr. W. T. Henshaw, Charleston.

Massachusetts March Examination

Dr. Charles E. Prior, secretary, Massachusetts Board of Registration in Medicine, reports the written, oral and practical examination held at Boston, March 11-13, 1924. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 48 candidates who took the physicians' and surgeons' examination, 28 passed, and 20, including 2 osteopaths, failed. Two candidates received licenses by endorsement of their credentials. The following colleges were represented:

PASSED		Year Grad.	Per Cent.
Yale University		(1922)	87.6
American Medical Missionary College, Chicago		(1906)	77.5
Indiana University School of Medicine		(1914)	78.9
Drake University		(1906)	91.1
Johns Hopkins University		(1917)	84.6
Harvard Univ.	(1921) 84.4, (1922, 4) 84.2, 84.7, 86, 89.6,	(1923)	78.8
Middlesex College of Medicine and Surgery		(1922, 2)	75, 76.8
Tufts College Medical School	(1921) 78.6,	(1923)	75
Columbia University	(1921) 85.1,	(1922)	81.1
Jefferson Medical College of Philadelphia		(1923)	77.2, 80.2
University of Pennsylvania School of Medicine		(1923)	81.7
University of Tennessee		(1919)	79.5
Vanderbilt University Medical Department		(1921)	81.1
University of Vermont		(1922)	78.8
University of Virginia		(1922)	82.7
McGill University, Quebec	(1922) 85,	(1923)	79.5
University of Rome, Italy		(1914)*	77.2
Syrian Protestant College, Beirut, Syria		(1899)	75

FAILED		Year Grad.	Per Cent.
Middlesex College of Medicine	(1922) 67.7, (1923, 3)	62.6, 68.2,	69.4
Tufts College Medical School		(1923)	71.9
St. Louis College of Physicians and Surgeons		(1921)	70
		(1923, 4) 58.1, 58.6, 70.5,	71
McGill University, Quebec		(1916)	69
National University, Athens, Greece		(1922)*	44.8
University of Naples, Italy		(1919)*	62.2
University of St. Vladimira, Kief, Russia		(1912)*	55.7
University of Moscow, Russia		(1916)*	69
Syrian Protestant College, Beirut, Syria	(1911)* 64.5,	(1912)*	66
Ottoman University, Turkey		(1917)*	39.2
Osteopaths			70.3, 53.9

ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Johns Hopkins University	(1921)	N. B. M. Ex.
Cornell University	(1922)	N. B. M. Ex.

Dr. Prior also reports a special examination held at Boston, Jan. 17, 1924. At this examination 3 candidates were examined, all of whom passed. The following colleges were represented:

PASSED	Year Grad.	Per Cent.
Harvard University	(1911)	83.4
Detroit College of Medicine and Surgery	(1915)	90.3
University of Buffalo	(1897)	84.6

* Graduation not verified.

Book Notices

The Avalanche. By Ernest Poole. Cloth. Price, $2. Pp. 344. New York: the Macmillan Company, 1924.

Mr. Poole has been known for many years as a writer of novels displaying a keen insight into the changing trend of human affairs, and particularly the newer social values. His most recent novel is of especial interest to the physician, as it is intimately concerned with two important problems of scientific medicine today: the influence of the mind on the body, and the relative value of publicity in presenting scientific medicine to the public. The story is that of Llewellyn Dorr, a young neurologist, who is called, in the absence of his chief, to attend a New York society girl, who has made her position in society by an advantageous use of newspapers. This influence she has wielded, because the owner and editor of the *Chronicle* is also desirous of her love. The girl becomes interested in the possibilities of promotion for the young neurologist, who is also an investigator into the newer problems of psychology. She marries him, and then begins to develop her ambitions for him. The result is the age old story of the popular physician. The gradually increasing number of patients, and particularly of wealthy patients, makes greater and greater inroads on his time and his vigor. His research is neglected, and he seems about to succumb to commercialism when he is recalled to himself by his ideals and by the influence of his mother, herself an investigator in bacteriology. At the same time, his wife begins to feel that her real interest is in the newspaper and its possibilities, rather than in the scientific investigations. The book ends with a note of mystery. Mr. Poole has written an artistic work in which the social issues concerned are clearly depicted. It is one that should be of service in bringing to the young medical man ideals that bid fair to be lost in this day of intensive promotion. At the same time, it is in no sense a social document, but an intensely interesting and beautiful story.

Die Zwillingspathologie. Ihre Bedeutung — ihre Methodik — ihre bisherigen Ergebnisse. Von Dr. Hermann Werner Siemens, Privatdozent für Dermatologie an der Universität München. Paper. Price, 90 cents. Pp. 103. Berlin, Julius Springer, 1924.

This little monograph collects some interesting material on the pathology of twins, and devotes some space to the diseases that occur in one or both. The author thinks that the investigations in human heredity may be studied by investigating the anthropology of the race, of the family and of twins. He thinks that the latter method opens a new field for the study of human heredity. Similarity in one egg twins is not susceptible of inductive reasoning; and, in human beings, breeding experiments that would be calculated to test the progeny of twins cannot be carried out. The classification of the author is made largely on the basis of the color of the skin, hair and eyes. When this pigmentation is similar, twins tend to resemble each other in physical characteristics, and mental characteristics are likely to be dissimilar. He does not find that the papillary lines in the fingers are identical in the two twins, and he believes that they are more commonly different than alike. He reviews the entire literature, and gives a group of diseases that have been observed in twins. Case histories of diseases of the eye and of the nervous system are presented. Tumors occurring in later life are also recorded. Siemens mentions a case of one egg twins in whom an adenocarcinoma occurred at the fifty-third year. He quotes Critzmann as saying that, in families affected with cancer, twin pregnancies are common. He also points out that malformations are of common occurrence; encephalocele, cleft palate and harelip, hypospadias, polydactylism and spina bifida are of not infrequent occurrence in twins. The monograph, on the whole, is unique in that the author attempts to show the possibility of increasing our knowledge of heredity by studying similarities and dissimilarities in twins. The practical nature of the material is interesting because of the careful review of the literature, which refers in considerable detail to the various diseases of twins.

Nouveau traité de médecine. Publié sous la direction G. H. Roger, Fernand Widal, P. J. Teissier, et M. Garnier, secrétaire de la rédaction. Fascicule VIII. Pathologie des glandes endocrines: Troubles du développement. Boards. Price, 40 francs. Pp. 455, with 107 illustrations. Paris: Masson et Cie, 1923.

This volume deals with the functions and diseases of the glands of internal secretion. One of the characteristic features of the whole system is the emphasis laid on the pathologic anatomy and physiology of the organs and tissues considered. This attitude is stressed in the volume on the endocrine diseases, which is particularly desirable in treating this field of medicine, wherein fancy frequently leads one quickly into the deep water of pure speculation. Those facts, which are fairly well known, are treated exhaustively; purely theoretical considerations are carefully labeled as such. Throughout the book, the literature is fully and somewhat critically reviewed. The volume is well illustrated from the points of view of both the pathologic anatomy and the clinical entities under discussion. The chapters on the thyroid are unusually thorough and well done. The iodin treatment of exophthalmic goiter, which has received much favorable comment from the hands of American authors during the past year, is dismissed with the statement that iodin and iodids have at times been prescribed, but it is prudent, in the author's opinion, to abstain from these, even in goiters that have become active.

Applied Pathology in Diseases of the Nose, Throat, and Ear. By Joseph C. Beck, M.D., F.A.C.S., Associate Professor of Laryngology, Rhinology, and Otology, University of Illinois College of Medicine. Cloth. Price, $7.50. Pp. 280, with 268 illustrations. St. Louis: C. V. Mosby Company, 1923.

The author states that it is his desire to limit this work almost exclusively to his own personal experiences; therefore it cannot be considered as a textbook. The subjects are taken up comprehensively, beginning with the chief diseases of the nose, pharynx, nasopharynx, larynx, trachea, ear, and then the acute complications of mastoiditis. Following that is a discussion of the chronic diseases of these structures. A great deal of attention is given to therapy, perhaps more than one would expect in a work on applied pathology. It is a little surprising that at times a number of proprietary preparations are mentioned, such as listerine. Many valuable points are suggested, based not only on the author's clinical experience but also on his knowledge of the literature. The book has numerous illustrations, many of them excellent. The section on deformities of the ear and plastic surgery contains clinical cases to illustrate it. It is regrettable that the photomicrographs in the book are not as clear as one would wish them, in order to show the details they are expected to bring out. A number of the appliances, original with Dr. Beck, are illustrated and should prove useful. The book is most readable; the type is large, and the book should prove a valuable adjunct to the otolaryngologist's library.

Report of the Technical Conference for Consideration of Certain Methods of Biological Standardisation. League of Nations, Health Organisation. Paper. 1924.

At the conference called by the League of Nations Health Committee in Edinburgh, July 19-21, 1923, to consider methods of biologic standardization, the following representatives were present: Cushny (Edinburgh), Krogh (Copenhagen), Macleod (Toronto), Abel (Baltimore), Dixon (Cambridge), Heymans (Ghent), Magnus (Utrecht), H. H. Mayer (Vienna), Rost (Berlin), Straub (Munich) and Tiffeneau (Paris). Dr. Madsen, chairman of the committee, presided, and for the technical meetings of the conference Professor Cushny acted as chairman. An international standard of activity and an international agreement concerning the acceptance of such standards were considered in relation to felix mas, thyroid gland, cannabis indica, ergot, pituitary (posterior lobe) extract, insulin, suprarenal preparations, aconite, organic arsenical preparations and digitalis, scilla, strophanthus and other heart tonics. The conference unanimously agreed that for the present one unit of insulin be defined as one third of the quantity that lowers the blood sugar to the convulsant level of 0.045 per cent. in a normal rabbit of about 2 kg. body weight, which has been starved for twenty-four hours prior to the injection. With regard

to aconite, it was agreed that the therapeutic importance of preparations of aconite was not sufficient to make action with regard to them desirable at present.

Miscellany

THE UNITED FRUIT COMPANY

Large corporations are realizing more and more that money spent for sanitary surroundings and proper care of employees is an outlay that produces measurable returns. One of the pioneer organizations in this field, the United Fruit Company, has gradually developed an organization that has won respect throughout the world, not only for its efficiency of operation, but for the quiet sincerity with which it conducts its work. This company maintains hospitals and dispensaries in Central and South America and the West Indies, and dispensary service in the ports of Boston, New York and New Orleans. Its medical department takes care of employees and their dependents in the tropics, and of the inhabitants of communities adjacent to plantations when other medical service is not available. It supervises all matters concerning quarantine and immigration affecting the company's interests, and the sanitation of the company's steamships. In the 1923 annual report of the medical department, just received, it appears that 28,398 cases were treated in the company's hospitals, 227,545 treatments were given in its dispensaries, and 10,170 cases were treated on its steamships.

The company planted during the year 40,878 acres of virgin land, which had to be cleared of the jungle, then drained, and camps built. This work in particular was responsible for the high hospital admission rate of 421 per thousand employees.

The death rate, 13.01 per thousand, was little more than the general death rate for the United States. Malaria was responsible for the greatest morbidity, causing 38 per cent. of the hospital admissions, and about 13 per cent. of the deaths. Pneumonia was responsible for 22 per cent. of the deaths, dysentery for more than 7 per cent., nephritis more than 5 per cent., and external causes about 7 per cent. Venereal infections comprised almost 6 per cent. of the hospital admissions and 5 per cent. of the dispensary treatments; injuries comprised 9 per cent. of the hospital cases and 11 per cent. of the dispensary treatments. On the average, patients with malaria received a total of 15 gm. of quinin by mouth, and patients unable to take quinin in that manner averaged two hypodermic injections of 1.4 gm. each. The treatment of erysipelas was attended with excellent results, the well known method of swabbing with phenol (carbolic acid) and then neutralizing with alcohol as soon as a white coating appears being employed. The temperature usually dropped to normal within from three to six hours. The same treatment was used for herpes zoster, with equally excellent results.

The United Fruit Company is not only providing medical care for employees and their dependents, but also is endeavoring to meet the problems of sanitation involved in maintaining plantations in the tropics, and to further health education. Its plantations are not only fruit farms, but they are health centers in small tropical communities. They are a demonstration of what modern medicine can do to make tropical and subtropical countries places in which the white man can live.

A MACHINE THAT MAKES ITS OWN REPAIRS

The other day we heard a man grumbling about the doctors. He roundly asserted that, as diagnosticians, they were but a sorry lot. "Something goes wrong," he said, "with a complicated machine in my factory or a delicate instrument in my laboratory. I call in a professional engineer or a skilled mechanic. He very quickly locates the trouble (that is to say, diagnoses the case); readjustments or repairs are made; and the worry is over. Now the body is a machine and the doctor is the professional engineer. He has spent a lifetime in the study of this machine; and he has at his disposal all the accumulated experience of his profession for ages past. Something goes wrong with this machine. You call in the doctor; he diagnoses; prescribes medicine, diet, etc. You follow instructions faithfully; but with no results. You try another doctor—same result. You go to a specialist; to two or three of them, and you are lucky if you don't collect as many different diagnoses and end up on the operating table. No, take it from me, the average doctor, as the professional engineer of this machine we call the human body, simply isn't in it with the mechanical engineer in finding what is wrong with a machine and setting it right."

Then we pointed out to our friend that to compare the most ingenious and perfect mechanism ever made by man with the human body was as foolish as to place his baby's go-cart in the same class with a Rolls-Royce motor. We asked him to consider that although the modern high-class automobile in respect of the ingenuity of its design, its power, durability, speed and ease of control may be regarded as the most perfect mechanical triumph of the age, it is but a child's toy in comparison with that crowning triumph of all creation, man. Not only is this body of ours a heat engine, with an efficiency undreamed of in any heat engines of man's construction; but it is a self-contained chemical laboratory, in which are carried on, ceaselessly and surely, scores of differing elaborate reactions for the production of the substances needed for the growth and repair of the body.

For one point in which the man-made machine may go wrong there are a thousand where this infinitely complex human machine may slip into trouble. We bade him be fair to the doctor by recognizing the infinite complexity of the problem of making the right diagnosis in a complicated human disease.

And then, to drive in the last nail of conviction, we dwelt upon the marvelous fact that the human machine is self-repairing. To match that, the automobile would have to be capable of building up the walls of its cylinders, the surfaces of its piston rings and the seating of its valves, continuously, and in the exact measure in which they were worn away. And as for the tires, they would have to fabricate new rubber on their treads as these were ceaselessly disintegrated; and when a deep gash was cut in the shoe, molecule by molecule new rubber would have to be built up by the tire itself, automatically, until the wound was wholly closed.

Although it is true that but for this marvelous power of self-repair, the doctors and surgeons would, indeed, be in a hopeless quandary, we may at least be assured of this: that the most difficult repair job in a garage or a factory is simplicity itself compared with repair work in a hospital of sick men.—*Scientific American.*

TUBERCULOSIS—A FAMILY PROBLEM

The results of a ten-year demonstration of the home hospital plan of treating tuberculosis are set forth in a report by the New York Association for Improving the Condition of the Poor. Under the home hospital plan, the entire family is treated when a parent acquires tuberculosis, instead of sending the parent to a sanatorium and the children to an institution. When tuberculosis invades a home, the usual course is to place the patient, either the father or the mother, in a sanatorium and the children in a preventorium, foster home or with friends. Separated from the family, the patient becomes discouraged, which retards his progress. The report says that if there ever was a disease in which the family and not merely the patient is the unit of treatment, it is tuberculosis. The Home Hospital is a demonstration of the results that can be secured by housing the tuberculous patient and his family in a wholesome environment, by supplying the family with sufficient relief to provide for an adequate standard of living, and by providing the necessary medical and nursing care to insure the recovery of the patient and to prevent tuberculosis from occurring in members of the family who had not previously been affected. In ten years, no new cases of tuberculosis, either of children or of adults, has developed while a family was in the institution. Judging by results, the Home Hospital is one of the most effective measures devised for guarding the health of well members of the family, the

report says. The fact that practically 60 per cent. of the patients are able to assume full responsibility toward their families after discharge is evidence of the lasting effect of Home Hospital treatment. There are in this report also tabulations, comparing the condition of patients on admission at Home Hospital with other institutions, and similar comparisons on discharge; a comparison of results achieved on discharge according to the condition at Home Hospital and four sanatoriums; the after-history of discharged adult patients, and a detailed analysis of the cost of the home hospital plan.

Medicolegal

Evidence Required in Malpractice Case—Bad Results

(Lorenz v. Lerche (Minn.), 196 N. W. R. 564)

The Supreme Court of Minnesota says that the tibia and fibula of the plaintiff's right leg were fractured at the junction of the lower and middle thirds. The ends of the bones could not be kept in place, and union was slow. The result being unsatisfactory, after about a year the plaintiff consulted the defendant, a surgeon, who advised rebreaking and resetting the fracture. The operation was performed, but was not successful. For a long time the plaintiff suffered from ulcers on the instep and the heel, the ankle became rigid, and bony union did not form at the fracture. This action for malpractice followed, with a verdict for $15,845; but a new trial is granted.

This was a case wherein a jury could not determine the issue of the defendant's negligence without testimony from medical experts. The main item on which to base damages was the failure of the fractured bones to form a bony union; the next of substance, the ankylosis of the ankle joint. Whether either was caused by the defendant's unskilful or negligent operation or treatment must necessarily rest on competent medical testimony. Bad results alone will not justify an inference of improper treatment. The skill and care of the most competent and painstaking surgeon often fails to cure or relieve. The inherent recuperative or healing powers of patients differ greatly. Even in the same person, such powers may vary from time to time. Therefore, when the question is to be determined whether a physician or surgeon has negligently or unskilfully treated or operated on a patient, the standard to be given the jury is the usual and customary practice of the ordinarily skilled and careful practitioner in the community. When the physician has come up to that standard, the law holds him free from damage claims, even though it appears that errors of judgment in diagnosis or treatment have occurred. The question for the jury is not what a certain practitioner may have done in a particular case. Hence, special care should be taken that verdicts in malpractice cases are not made to rest on a generally expressed opinion that a course of treatment was improper, unless there is evidence reasonably disclosing some specific acts or omissions which, under the standard mentioned, constitute negligence or unskilfulness, and, further, that such negligence or unskilfulness, in the opinion of the medical experts, caused the suffering and bad results for which damages are sought and allowed. In such a case as this one, the question put to a qualified expert should not call for his opinion as to whether the surgeon's treatment was proper or improper, but rather whether or not it was according to the customary and usual practice of the ordinary careful and skilled surgical practitioners of the same school in the community.

The main weakness in the plaintiff's case was that he had only one medical expert, who had had an exceedingly limited experience and had never attempted an operation by bone inlay, such as the defendant performed on the tibia, which six medical experts called by the defense testified was proper and customary practice, while he based his opinion wholly on the statements of the plaintiff and his wife as to the appearance of the toes which protruded from the cast, their testimony of the pain, and the bad results. However, the plaintiff's proof made a question for the jury as to whether the ulcers and ankylosis resulted from the defendant's failure to heed the alleged complaints of the plaintiff as to pain, and to relieve it by cutting windows in or entirely removing the cast. Still, the record suggested no inattention, but rather that the defendant did his best. He and his assistant attended the plaintiff daily for weeks. His endeavors should not be penalized in this large verdict, unless there was substantial evidence of negligence which caused all that was complained of in the complaint, which the supreme court feels there was not.

Injured Employee Selecting Physician—Going Away for Treatment

(Scruggs Bros. & Bill Garage et al. v. State Industrial Commission et al. (Okla.), 221 Pac. R. 470)

The Supreme Court of Oklahoma, in affirming an award of the state industrial commission in favor of an injured employee for $533.45, to cover bills paid and unpaid, and giving physicians a lien on the sum to the extent of $250, says it thinks that under the workmen's compensation law and construction placed thereon by the courts, the employer has a right to employ the agency through which treatment is secured. But when the employer delegates that right to the injured employee, as appeared to have been done in this case, it carries with it the right to do all legitimate and necessary things, such as to pay railroad fare, drug bills, hospital fees and nurse hire.

More specifically, the court holds that, under the workmen's compensation law of Oklahoma, the employer has the right to name the physician to render medical treatment to an injured employee, and direct where such employee shall go for treatment; and when the employee, without reference to the wishes of the employer, takes the matter into his own hands and secures treatment and contracts bills, the industrial commission has no authority, over the objection of the employer and insurance carrier, to allow such bills against them. But this is a right that the employer can waive; and when his conduct is such as reasonably to indicate to the employee that he may select the physician or the place of securing treatment, and the employee contracts for treatment, the employer and the insurance carrier are liable for the outlay so long as the bills are reasonable and necessary.

When the employer waives the right to direct the agency to render treatment to an injured employee, and the employer has knowledge that the employee is going out of the community for treatment, and makes no objection thereto, such employer likewise waives proof that the bills for such treatmen are reasonable for the same class of treatment in the location in which the injury occurred. Furthermore, when the employer furnishes a physician for first aid treatment, and in the presence of the employer such physician advises the injured employee to go elsewhere for treatment, and the employer consents thereto and advises that it is the thing to do, and reports to the industrial commission that the injured employee has been sent to a hospital for treatment. the commission is authorized to excuse the employee from making formal request on the employer for treatment, and likewise excuse the employee for making proof that the bills paid and to be paid are reasonable and such as would have been charged a patient in the same station in life as the employee, and in the community in which the injury occurred.

When bills presented for treatment are shown to have been paid in advance by the employee, along with others unpaid, contracted by him, the bills are themselves some proof of their reasonableness or unreasonableness, and, when the conduct of the employer has been such as to justify the allowing of bills of that kind, they should be allowed unless they are in amount such as would shock the sense of justice of the commission or the court, on appeal. And when bills are presented by the injured employee, some of which have been paid and others of which have not been paid, and the bills are of a character properly allowable by the commission, the award made by the commission should be in favor of the injured employee for the whole amount, and the unpaid creditors declared to have a lien on the sum awarded to the extent of the unpaid portion of the bills.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

4: 155-240 (May) 1924

Cultivation of an Endameba from Turtle, Chelydra Serpentina. H. P. Barret and N. M. Smith, Charlotte, N. C.—p. 155.
Endameba Barreti, N.Sp., from Turtle, Chelydra Serpentina. W. H. Taliaferro and F. O. Holmes, Baltimore.—p. 160.
Corpuscle Counts on Normal and Complement Deficient Guinea-Pigs. R. R. Hyde, Baltimore.—p. 169.
Terminal Abdominal Structures of Male Mosquitoes. S. B. Freeborn, Amherst, Mass.—p. 188.
Control of Hookworm Disease. XXXII. Methods of Measuring Human Infestation. W. W. Cort, Baltimore.—p. 213.
Longevity and Infectivity of Hookworm Larvae. J. E. Ackert.—p. 222.
Stoll Egg Counting Method in Area Lightly Infested with Hookworm. N. C. Davis.—p. 226.
Probable Error of Constants of Population Growth Curve. R. Pearl and L. J. Reed, Baltimore.—p. 237.

American Journal of Roentgenology and Radium Therapy, New York

11: 383-486 (May) 1924

Treatment of Carcinoma of Esophagus. D. Quick, New York.—p. 383.
Diagnosis of Primary Intrathoracic Neoplasms. G. F. Thomas and H. L. Farmer, Cleveland.—p. 391.
Case of Hodgkin's Disease with Late Development of Sacro-Iliac Disease Cured by Roentgen-Ray Treatment. G. E. Pfahler and C. P. O'Boyle, Philadelphia.—p. 406.
*Primary Carcinoma of Gastro-Intestinal Tract Accompanied by Bone Metastasis. E. L. Jenkinson, Chicago.—p. 411.
*Eventration of Diaphragm. H. J. Walton, Baltimore.—p. 420.
Case of Traumatic Hernia of Diaphragm. F. F. Borzell, Philadelphia.—p. 426.
Palliative Doses of Roentgen Ray in Advanced Cancer. E. T. Leddy and J. L. Weatherwax, Philadelphia.—p. 429.
Studies on Physical Foundations of Roentgen-Ray Therapy. I. H. Fricke and O. Glasser, Cleveland.—p. 435.
*Roentgenotherapy of Carbuncles and Other Infections. F. M. Hodges, Richmond, Va.—p. 442.
Measurement of Air Ionization by Means of Small Chamber of Bakelite and Ambroid for Use in Study of Roentgen-Ray Dosage. H. Clark, New York.—p. 445.
Assumed Causes of Roentgen-Ray Intoxication and Injuries. B. F. Schreiner and K. W. Stenström, Buffalo.—p. 451.
Case of Papillary Ovarian Cyst Treated by Roentgen Ray. C. P. Lape, Buffalo.—p. 454.

Primary Carcinoma of Esophagus with Extensive Metastases.—Jenkinson's case was one of carcinoma involving the middle third of the esophagus with necrosis; metastatic carcinoma of the liver, dorsal and lumbar spine, ribs, lungs and retroperitoneal, tracheobronchial, posterior mediastinal and biliary lymph glands.

Eventration of Diaphragm.—In Walton's case there was eventration of the left side of the diaphragm, with dextrocardia and transposition of the liver. An extensive bibliography is given.

Roentgenotherapy of Carbuncles.—Hodges has treated nine large, extensive, ulcerating, sloughing carbuncles with the roentgen ray. In all of the cases the pain was almost entirely relieved in from six to twenty-four hours. In five of the nine cases, the pathology changed rapidly, usually within two days, into a fairly large central abscess which drained freely for two or three days and healing followed promptly. In only one case was there any extension of the pathology following radiation. This carbuncle was located in the parotid area and too small a dose of the ray was used on account of fear of a parotid reaction in an extensive surrounding infection. A larger dose four days later was followed by good results.

American Journal of Tropical Medicine, Baltimore

4: 233-340 (May) 1924

Campaign to Control Yellow Fever. M. E. Connor, New York.—p. 277.
*Investigations Concerning Amebic Dysentery. A. W. Sellards and M. Theiler, Boston.—p. 309.
*Inoculability of Leishmania. J. Montenegro, Sao Paulo, Brazil.—p. 331.

Studies on Amebic Dysentery.—Specimens of feces containing cysts of *Endameba histolytica* but no trophozoites were injected by Sellards and Theiler directly into the large bowel of kittens. Using material not more than six days old, six out of eight animals were infected. The circumstances of the experiments suggest very strongly that excystation occurred in the large bowel. Additional evidence was obtained that stasis is an important factor in producing an infection of the intestine with *E. histolytica*. Kittens were infected with the organism and the large intestine was then deprived of its normal supply of water by placing a ligature around the gut. The amebas disappeared promptly in three animals in which this procedure was carried out early in the course of the infection. The progress of the disease was not checked in one animal in which the operation was delayed for several days after symptoms appeared. According to the authors' conceptions, the cysts of *E. histolytica*, when ingested by mouth, are carried rapidly, by peristalsis, through the small bowel and set up lesions at points of stasis in the large intestine. In three kittens amebic infection of the colon readily invaded the ileum when the ileocolic sphincter was rendered functionless. Under the conditions of these experiments, the sphincter was an important factor in the mechanical protection of the ileum. In three animals, ligation of the small bowel and inoculation of active amebas immediately above the ligature failed to produce an infection, suggesting that the environmental conditions in the ileum are somewhat unfavorable for their development.

Inoculability of Leishmania.—Experiments were conducted by Montenegro to determine, if possible, the mode of implantation in the mucous membranes of leishmaniasis tropica. As initial primary lesions are very difficult to obtain, if not impossible, auto-inoculations were tried on volunteers. It was established that leishmaniasis is auto-inoculable; that it is a contagious disease, and that the pathology of the lesions is different from that ordinarily observed in spontaneous leishmania infections. Healthy persons can be successfully inoculated by the material obtained from a sick one. Inoculations of *Leishmania* culture in an already infected person were negative. Inoculations by puncture were not successful. The incubation period was about three weeks.

American Review of Tuberculosis, New York

9: 191-284 (May) 1924

*Tuberculosis in Germany. H. Emerson.—p. 191.
*Tuberculous Reinfection and Tuberculin Reaction in Testicle of Tuberculous Guinea-Pig. E. R. Long, Chicago.—p. 215.
*Testicle as Indicator of Allergy in Hypersensitiveness of Infection and Anaphylaxis. E. R. Long and MacH. Seyfarth, Chicago.—p. 254.
*Specific Antigen in Urine in Tuberculosis. B. M. Fried, Boston.—p. 264.
*Technic of Oral Thermometry. P. M. Andrus and R. H. Walker, London, Ontario.—p. 268.
Anesthesia in Tuberculous. J. R. Eastman, Indianapolis.—p. 276.

Tuberculosis in Germany.—In the course of a brief survey of health, hunger and disease among the children of Germany, Emerson had exceptional opportunities for learning of the present status of tuberculosis, as to incidence, death rate, facilities for control and treatment, and the clinical forms of the disease, not only among children but at all ages. This communication is based on personal observations in hospitals and clinics and in the homes with visiting nurses, and on the study of original records of health departments, private health agencies and other statistical offices of the Reich and the cities of Berlin, Breslau, Dresden, Munich, Frankfort a. M., Cologne and Coblenz and the district of Opladen. Emerson's experiences confirm the belief that improvement in industrial conditions and in the standard of living of wage-earners and their families, is a more potent factor in determining the reduction of tuberculosis mortality than any of the specific or accessory measures employed for attack against the disease. Germany is presenting now a picture of acute epidemic spread of tuberculosis, due primarily to uncontrollable insanitary conditions of housing and lack of means to separate the sick from the well. Probably contributing to this as a very important factor is the lack of food and, in particular, the shortage of milk, butter and animal fats in the diets of children since 1914.

Tuberculous Reinfection.—The experiments made by Long dealt with two related subjects: first, the comparative effects of tubercle bacillus infection of the testicle in normal and already infected guinea-pigs and, second, the effect of tuberculin on the testicle of normal and tuberculous guinea-pigs. Briefly, the results of infection may be described as being, respectively, defensive in normal guinea-pigs and destructive in already infected guinea-pigs. When tuberculin is introduced in a small dose into the testicle of a tuberculous guinea-pig, a prompt reaction occurs. Tuberculin in a small dose has no effect, either early or late, on the testicle of a nontuberculous guinea-pig.

Testicle as Indicator of Allergy.—Long and Seyfarth found that the guinea-pig testicle is useful in demonstrating the hypersensitiveness of infection, but it does not indicate the anaphylactic state. Urine from tuberculous patients with progressive and latent disease has not been found to contain tuberculin or any substance causing reaction or degeneration of the germ cells of the testicle. Fresh urine appears to have no effect on the normal testicle.

Antigen in Urine in Tuberculosis.—The purpose of Fried's study was to determine whether the urine excreted by tuberculosis patients, and concentrated according to the Wildbolz technic, contains a specific antigen detectable by the complement fixation reaction. Forty specimens of urine (thirty-one from patients with active pulmonary tuberculosis and nine from patients with renal tuberculosis) were concentrated to one tenth of their volume in accordance with the technic described by Wildbolz. The complement fixation reaction was performed with each sample of urine, which served as an antigen in the presence of an immune horse serum rich in antibodies. In only one instance the immune serum fixed, in the presence of the concentrated urine, two units of complement, and in five it fixed one and one-half units. The remaining thirty-four urines were absolutely negative.

Unreliability of Clinical Thermometers.—One important factor emerging from the investigation made by Andrus and Walker is that even guaranteed thermometers cannot be relied on as accurate when new, and that they may become inaccurate or mechanically defective after use. Observations were also made as to the time of recording of one and two minute thermometers by mouth. Seventy-one per cent. of tested persons failed to record their maximum temperature elevation by mouth in five minutes; and 16 per cent. failed to record their maximum in ten minutes. Andrus and Walker feel that fifteen minutes by mouth in temperate weather is necessary to insure maximum readings. Twenty-four per cent. of patients with fever failed to record fever in five minutes by mouth, while 42 per cent. failed to register fever in three minutes.

Archives of Internal Medicine, Chicago

33: 535-657 (May) 1924

*Paradoxical Shortening of Coagulation Time of Blood After Intravenous Administration of Sodium Citrate. N. Rosenthal and G. Baehr, New York.—p. 535.

*Narcotic Drug Addiction. II. Presence of Toxic Substances in Blood Serum in Morphin Habituation. E. J. Pellini and A. D. Greenfield, New York.—p. 547.

*Congenital Peripheral Resistance; Causative Relation to Precocious Hypersensitive States. E. Moschcowitz, New York.—p. 566.

*Metabolism-Pulse Ratio in Exophthalmic Goiter and in Leukemia. C. R. Minot and J. H. Means, Boston.—p. 576.

*Unique Case of Myeloma. A. W. Meyer and F. A. Cajori, Stanford University, Calif.—p. 581.

*Histogenesis and Nature of Gaucher's Disease. T. R. Waugh and D. S. MacIntosh, Montreal.—p. 599.

*Experimental Chronic Glomerulonephritis. L. Leiter, Chicago.—p. 611.

*Hematoporphyrinuria as Independent Disease and as Symptom of Liver Disease and Intoxications. F. Harbitz, Christiania, Norway. —p. 632.

*Calcium Treatment for Edema. R. Rockwood and C. W. Barrier, Rochester, Minn.—p. 643.

Sodium Citrate Shortens Blood Coagulation Time.—Rosenthal and Baehr noted clinically that sodium citrate, when administered intravenously in large doses (0.5 gm. for dog or cat, from 3.0 to 8.0 gm. for man), produces a pronounced and progressive shortening in coagulation time of the blood, which usually reaches its maximum within one hour and may persist for many hours. As a rule, the coagulation time slowly returns to normal within twenty-four hours. This action of sodium citrate on the coagulation of the blood in vivo is exactly opposite to that occurring in vitro. They believe that it is dependent on some effect on the blood platelets, which are not directly destroyed by the citrate but are damaged by contact with it and are then removed from the circulation by the spleen or other organs, where they are destroyed and their thromboplastic contents gradually liberated into the circulating blood. In congenital hemophilia, however, in which there is presumed to be some deficiency in the quality of blood platelets, the injection of sodium citrate is followed by a prolongation in the coagulation time, a diminution of the blood platelets and a marked increase in the bleeding tendency. The slow intravenous injection of large doses of sodium citrate up to 5 gm. has been successfully employed in arresting hemorrhages due to gastric ulcer, typhoid fever, pulmonary tuberculosis and other bleeding conditions that are not accompanied by diminution or disease of the blood platelets. Although the coagulation time of the blood is often materially shortened, no tendency to intravascular thrombosis has been observed. The real danger to be guarded against is a too hasty injection. In hemorrhagic blood diseases, its use is strictly contraindicated.

No Specific Toxic Substance in Blood of Drug Habitués.—Beliefs previously held that a specific toxic substance is produced by morphin habituation are controverted by the study made by Pellini and Greenfield. They failed to find such a toxic substance in the blood of dogs habituated to morphin. The blood serum of these dogs did not produce circulatory disturbances in normal animals into which the serum was injected.

Narrow Aorta Causes Hypertension.—A case is reported by Moschcowitz which he believes is proof of the fact that a narrow aorta may furnish sufficient peripheral resistance to cause hypertension and its consequences, arteriosclerosis and nephritis, and thus explain the genesis of hypertension in cases otherwise obscure; for instance, juvenile and precocious hypertension. The heart was very large. The left ventricle was enormously dilated. The muscle was firm and brownish red. The aorta was markedly sclerosed and inelastic. The liver, spleen and pancreas were enlarged and firm. The lungs at the bases were intensely congested and slightly edematous. A chronic diffuse nephritis (arteriocapillary fibrosis) was also found.

Metabolism-Pulse Ratio in Exophthalmic Goiter.—Minot and Means studied the basal metabolism rate against basal pulse rate in 126 cases of exophthalmic goiter and in seventy-one cases of chronic leukemia. Of the latter patients, forty-five had myelogenous and twenty-six lymphatic leukemia. The amount of pulse elevation for a given metabolic rate elevation was found to be essentially the same in hyperthyroidism and in chronic leukemia. From this, it is inferred that in both diseases the tachycardia is chiefly the result of an increased metabolic rate. Another similarity between these two diseases is the fact that certain symptoms of hyperthyroidism which are believed to be the direct expression of an increased metabolic rate also occur in leukemia, a disease likewise invariably characterized by increased heat production.

Multiple Myeloma.—In the case cited by Meyer and Cajori, the patient, aged 68, died of bronchopneumonia. In the clinical diagnosis, the presence of arteriosclerosis, bronchial asthma and chronic hypertrophic arthritis were noted. It probably is significant that 3 per cent. of albumin was present in the urine, and possibly also that the patient stated that he had "sciatica" all over his body for years. His chief complaint on admission was shortness of breath on exertion, the duration of which he could not recall. The arthritis deformans was said to have begun fourteen years before. There was a history of syphilis. The necropsy showed numerous fractures, fairly marked scleroses, calcareous deposits and evidences of periostitis in the form of roughenings of the external surface of a number of bones. The spleen was very small, weighing only 104 gm., and the uniquences of the case lay in the peculiar deposits in many of the articular cartilages and the extensive urate deposits in the subcutaneous tissues and in some of the injured tendons.

Innumerable, distinct, tumors were present everywhere in the skeleton. They proved to be myelomas.

Nature of Gaucher's Disease.—Waugh and MacIntosh had an opportunity to subject to careful microscopic study the spleen removed from an early case of Gaucher's disease. The patient was 5 years of age. From the histologic studies of this early case, coupled with a review of previously reported cases and a consideration of allied conditions, the authors are inclined to the view that the splenomegaly of Gaucher is essentially a primary, probably congenital, progressive systemic disease of the hematopoietic tissues, characterized by an aleukemic dysmyelosis; that is, an irregular perverse myeloid metaplasia. The cells arise from the slumbering myelopotent cells of the reticulo-endothelial tissue of the hematopoietic organs. These are principally, and at first, the adventitial cells of the blood channels and the endothelium of the sinuses. Possibly, later, the closely related reticulum also takes on a similar activity. As yet, little can be said as to its etiology. The conception of Naegeli that it is a constitutional anomaly, that is, a mutation in the human species, is worthy of consideration.

Experimental Chronic Glomerulonephritis.—The attempt made by Leiter to produce glomerulonephritis by injection of bacteria repeatedly, of bacteria and diphtheria toxin, of bacteria and snake venom, of bacteria and spores directly into the renal artery, has met with absolute failure. Many pathologic processes have been described in the protocol, but none of these is a true glomerulonephritis. Yet the bacteria were able to produce vegetative endocarditis (never ulcerative) in a fair proportion of animals. "Spontaneous" nephritis was found in 40 per cent. of rabbits which had never received bacterial injections. In seventy-two of 133 rabbits used in the experiments of this research, spontaneous nephritis was noted, whether spontaneous or not cannot be decided. In other words, 54 per cent. had the typical lesions, which, however, are very easy to distinguish from those of glomerulonephritis. Leiter is of the opinion that a fair review of the literature in experimental chronic glomerulonephritis shows that many investigators have reported successful results that cannot stand when viewed in the light of strict criteria for glomerulonephritis.

Abdominal Symptoms in Hematoporphyrinuria.—Abdominal symptoms simulating appendicitis, and evenly distributed paresis of both arms and legs were the principal symptoms in the case reported by Harbitz. It was thought that there was an acute affection of the anterior horns or roots of the cord, extending at least as high as the fifth cervical segment, the cause being an intoxication or infection. Once or twice a year the man had peculiar attacks of abdominal pain, lasting about a week, and less severe in recent years. The onset was usually sudden, and the pain was usually in the umbilical region. The patient had the impression that the pain started on the right side. There was no distention, and tenderness was not pronounced. The pains, which were stinging and burning, were usually accompanied by vomiting of watery and, toward the end, bile-stained material. The urine was of light color on the first day of the attack, but grew darker from day to day and the dark color, the shade of Madeira wine, persisted for several days after the cessation of pain. During one of the attacks there was swelling and tenderness of both breasts, and the lightest touch of the nipples caused pain. The liver was not enlarged during the attacks. Spectroscopic examination of the urine revealed large quantities of urobilin and urobilinogen, together with a trace of hematoporphyrin. In the later years, the skin and sclerae were constantly slightly yellow. Signs of chronic nephritis were present during the last five or six years of life. Atrophy of the musculature of the hands, forearms and legs was marked. After fifteen years of more or less constant observation the man died. A complete necropsy was performed. The anatomic diagnosis was: porphyrinuric autointoxication (?); chronic nephritis with atrophy; hypertrophy of the heart, chiefly of the left ventricle; arteriosclerosis, particularly of vertebral and basilar arteries; thrombosis of the basilar artery; softening of a portion of the cerebellum and pons, wall of third ventricle and left caudate nucleus; edema of the brain; myelitis of cervical region of cord (?); spinal pachymeningitis with pigmentation; atrophy of the musculature of the upper and lower extremities, and parenchymatous degeneration of the liver.

Calcium in Edema.—Rockwood and Barrier have tried the effect of large doses of calcium salts (from 12 to 18 gm. daily) in cases of massive edema of diabetic and nephritic origin. In six of seven cases, most of which had been resistant to other methods of treatment, edema disappeared completely. In one case, edema disappeared, but the part played by the calcium is questionable. In two cases of nephritis, edema recurred later. None of these cases were complicated by significant myocardial damage, and in none was any other diuretic given with the calcium. In the few instances in which small doses of calcium (from 1 to 3 gm. daily) were used, little or no effect was observed. In some of the cases, edema was reduced by calcium lactate. In other cases, calcium clorid seemed more effective. Large doses of calcium do not seem to increase the amount of serum calcium. In one case of chronic glomerular nephritis, renal function was definitely improved as the edema subsided. In one case of diabetic edema, the basal metabolic rate rose during the administration of calcium from —13, April 21, to an average of +57, May 9. A similar dose of calcium did not produce a change in the basal metabolic rate of a normal person. In the other cases of edema discussed, the administration of calcium had no effect on the basal metabolic rate. The authors suggest that the high calcium content of milk may explain its diuretic action, and thus its popularity in the treatment of acute nephritis.

Arkansas Medical Society Journal, Little Rock

20: 193-203 (May) 1924

Tincture of Iodin in Treatment of Malaria and Syphilis. J. C. Cunningham, Little Rock.—p. 193.

Atlantic Medical Journal, Harrisburg, Pa.

27: 467-550 (May) 1924

Rôle of Ultraviolet Rays in Rickets. A. F. Hess, New York.—p. 467.
High Voltage Roentgen Rays in Cancer. J. F. McCullough, Pittsburgh.—p. 469.
Essentials of Neurologic Examination in Children. F. H. Leavitt, Philadelphia.—p. 474.
Essentials of Neuropsychiatric Examination in Children. E. A. Strecker, Philadelphia.—p. 476.
Evaluation and Treatment of Abnormalities in Blood Pressure. D. Riesman, Philadelphia.—p. 484.
Pathology of Pancreas in Diabetes. R. A. Keilty, Danville, Pa.—p. 492.
Obesity and Its Treatment. J. M. Anders, Philadelphia.—p. 498.
Rapidly Fatal Case of Cerebrospinal Meningitis. H. U. Miller, Reading, Pa.—p. 501.
Laboratory Reagents. G. R. Moffit, Harrisburg, Pa.—p. 502.
Pedal Groups: Structure. W. J. Merrill, Philadelphia.—p. 504.
Clinical and Histologic Observations in Treatment of Neoplastic Diseases by Combined Methods. W. L. Clark, E. J. Asnis and J. D. Morgan, Philadelphia.—p. 541.

Boston Medical and Surgical Journal

190: 965-1004 (June 5) 1924

*Acute Lung Abscess in Child Cured by Artificial Pneumothorax. G. M. Balboni and E. D. Churchill, Boston.—p. 965.
*Incidence of Infections in Hypertension. W. G. Walker and J. P. O'Hare, Boston.—p. 968.
*Carbon Dioxid Treatment of Acute Alcoholic Intoxication. F. T. Hunter and S. G. Mudd, Boston.—p. 971.
Recent New Hampshire Poisonings. Failure to Detect Presence of Cyanids. C. D. Howard, Concord, N. H.—p. 975.
Gastro-Intestinal Bleeding in Asthma and Other Forms of Allergy. W. Lintz, Brooklyn.—p. 980.

Lung Abscess Cured by Pneumothorax.—Balboni and Churchill report a case of posttonsillectomy abscess in a child, which was completely cured by artificial pneumothorax instituted very early in the course of the disease. Three other cases of pulmonary abscess in children cured by collapse therapy are cited from the literature.

Infections Play Minor Rôle in Hypertension.—Walker and O'Hare made a study of the comparative incidence of past infections in 400 unselected hospital patients with normal blood pressures and 400 with hypertension. They found that the relative incidence of the various infections in the past histories of these patients does not indicate that infections play a very important part in the causation of hypertension.

Carbon Dioxid Treatment of Alcoholism.—Carbon dioxid administration, to increase the pulmonary ventilation, has

been tried by Hunter and Mudd in four cases of acute alcoholic intoxication with a rapid revival from coma. Lesser degrees of intoxication did not show such striking improvement. An experiment was performed which apparently showed that the alcohol in the blood may be lowered more rapidly by the increased lung ventilation from carbon dioxid administration than would be the case without it. It is suggested that carbon dioxid would be of value in the treatment of all cases of alcoholic coma. In cases of methyl alcohol poisoning carbon dioxid would be even more efficacious, as, due to its lower boiling point, it has a higher partial pressure than ethyl alcohol, both being at the same concentration.

Bulletin Lying-In Hospital of City of New York

13: 1-111 (May) 1924

Abdominal Incompetence—Fundamental Cause of Splanchnoptosis. A. C. Vietor, Boston.—p. 1.
*Gastro-Elytrotomy in Prolonged Labor. A. B. Davis, New York. —p. 68.
*Painless Childbirth by Synergistic Methods. J. T. Gwathmey, E. P. Donovan, J. O'Regan and L. R. Cowan, New York.—p. 83.
Transperitoneal Cervical Cesarean Section. L. E. Phaneuf, Boston. —p. 94.

Reproduction a Pathologic Process.—The sooner the general public, both lay and medical, come to the realization that reproduction is potentially, and in 10 per cent. of the cases, actually a pathologic process, and act accordingly, the sooner, in Davis' opinion, childbed will be removed from the position which it now holds in this country as, next to tuberculosis, the cause of the greatest number of deaths. Every pregnant woman should be under competent obstetric care and instruction soon after conception, through gestation, labor and puerperium, which should continue until everything possible has been done to restore her to her normal activities of life in good condition. The emergency obstetric case should disappear. It is this type of case which magnifies the morbidity and mortality of obstetric records. So long as such cases do occur, the well equipped maternity hospital should receive them, even though they are apparently about to die. With such aid, some of the seemingly hopeless patients will recover. There should be some way of checking up the activities of the doctor who is repeatedly showing bad results. Preventive obstetrics should be a widely broadcasted slogan. The public should be taught to be more critical of obstetric result, and not to so complacently accept dreadful injuries to mother and child, or death of one or both, as the Will of an overworked Providence. Extraperitoneal cesarean section will save some lives that would otherwise be lost.

Painless Childbirth.—Gwathmey and his associates are of the opinion that in this series of more than 200 cases they have established the fundamental principles on which painless labor may be safely worked out, i. e., by using the minimum dose of a number of drugs, compatible and synergizing, using each drug for a definite and specific purpose.

Endocrinology, Los Angeles

8: 297-492 (May) 1924

*Individual Constitution and Endocrine Glands. J. Bauer, Vienna, Austria.—p. 297.
*Phagocytosis in Toxic Goiter. N. Goormaghtigh, Ghent, Belgium. —p. 323.
*Favorable Effects from Alimentary Administration of Insulin. J. R. Murlin, C. C. Sutter, R. S. Allen and H. A. Piper, Rochester, N. Y. —p. 331.
*Blood Pressure and Sugar Metabolism. J. Koopman, The Hague, Holland.—p. 340.

Endocrines and Chromosomal Potencies.—Bauer stresses the importance and high power of the chromosomes and their constituents, to show that the endocrine glands generally are only, as it were, condensers or multipliers of certain chromosomal potencies, and that not everything which may be attributed to pure endocrine disturbances is, in reality, of endocrine origin. The interference of general chromosomal (i. e., constitutional) and of incretory influences is to be taken into consideration in the greatest number of cases in which unsatisfying hypothetic suppositions of pure hormonal trouble usually are to be met with. In a purely experimental way, Bauer is treating cases of dwarfism and infantilism with extracts of fetal organs, partly from fetal calves and partly from human fetuses. These experiments seem to be yielding satisfactory results.

Phagocytosis in Toxic Goiter.—Attention is directed by Goormaghtigh to the existence of marked phagocytosis of the actively working thyroid cells, themselves, a fact which seems to have been overlooked. Only those thyroid acini undergo phagocytosis which are newly differential and are at a special stage of functional overactivity. The different stages of the process are described.

Alimentary Administration of Insulin.—Observations are reported by Murlin et al. which are interpreted to prove: (1) that insulin, in crude solution containing 0.1 per cent. hydrochloric acid, placed directly in the duodenum of the diabetic patient, can be absorbed and can function to cause the utilization of sugar; (2) that insulin placed in enteric coated tablets containing a substance designed to delay temporarily the destructive action of trypsin can survive the stomach in some patients, can be absorbed in the intestine and can operate to improve the diabetic condition very materially.

Blood Pressure in Diabetes.—In young diabetics blood pressure is normal; in older patients with diabetes hypertension is the rule. No relation between a complication and blood pressure was found by Koopman (except in Bright's disease and arteriosclerosis). Acidosis does not cause a diminished blood pressure.

Indiana State Medical Association Journal, Ft. Wayne

17: 137-168 (May) 1924

Treatment of Diabetes Mellitus with Insulin. J. A. MacDonald and C. L. Rudesill, Indianapolis.—p. 137.
General Clinical Management of Diabetes Mellitus. B. M. Edlavitch, Fort Wayne.—p. 144.
Discovery and Development of Insulin. A. Walters, Indianapolis. —p. 147.
Insulin in Surgery. M. F. Porter, Fort Wayne.—p. 149.
Obstetrics in General Practice. F. A. Malmstone, Griffith.—p. 150.

Journal of Bacteriology, Baltimore

9: 201-313 (May) 1924

Detection of Bacillus Botulinus and Bacillus Tetani in Soil Samples by Constricted Tube Method. I. C. Hall and E. C. Peterson, Berkeley, Calif.—p. 201.
Discoloration of Brain Medium by Anaerobic Bacteria. I. C. Hall and E. Peterson, Berkeley, Calif.—p. 211.
Liquefaction of Gelatin by Bacteria. M. Levine and F. W. Shaw, Ames, Iowa.—p. 225.
Hydrogen Sulphid Determination in Bacterial Cultures and in Certain Canned Foods. C. R. Fellers, O. E. Shostrom and E. D. Clark, Seattle.—p. 235.
Nitrification and the Nitrifying Organisms. I. R. N. Gowda, Ames, Iowa.—p. 251.
Number of Generations Necessary for Development of Power of Aerobic Growth by Bacterium Abortis (Bang). A. Harms, Lexington, Ky. —p. 273.
Studies on Pasteurization. XI. "Majority" and "Absolute" Thermal Death Points of Bacteria in Relation to Pasteurization. S. H. Ayers and W. T. Johnson, Jr., Washington, D. C.—p. 279.
Method for Obtaining Uncontaminated Samples of Intestinal Contents from Various Levels with Duodenal Tube. R. G. Freeman, Jr., and E. G. Miller, Jr., New York.—p. 301.
Function of Lag in Bacterial Cultures. J. M. Sherman and W. R. Albus, Washington, D. C.—p. 303.
Van Slyke Method for Determination of Amino-Acid Nitrogen as Applied to Study of Bacterial Cultures. R. W. Lamson, Boston. —p. 307.

Journal of Comparative Psychology, Baltimore

4: 125-224 (April) 1924

Correlations Between Two Mazes. F. C. Davis and E. C. Tolman, Berkeley, Calif.—p. 125.
Persistence of "Practice Effect" in Rotation Experiments. C. R. Griffith, Urbana, Ill.—p. 137.
*Effect of Ovariectomy and Lutein Injections on Behavior of Rats. D. I. Macht and D. W. Seago, Baltimore.—p. 151.
Factors Influencing Static Equilibrium. Effects of Practice on Amount and Direction of Sway. F. S. Fearing, Stanford University, Calif. —p. 163.
Explanation for Unequal Reductions in Postrotation Nystagmus Following Rotation Practice in Only One Direction. J. Q. Holsopple, Baltimore.—p. 185.
Delay in Awakening of Copulatory Ability in Male Albino Rat Incurred by Defective Diets. I. Quantitative Deficiency. C. P. Stone, Stanford University, Calif.—p. 195.

Effect of Ovariectomy on Muscle Activity.—The effect of ovariectomy and of injections of corpus luteum extracts was studied by Macht and Seago on the behavior of albino rats in the circular maze. Extirpation of both ovaries produced

a distinct impairment in the muscular activity and general behavior of the rats. Injections of small doses of ovarian extract, and more particularly of corpus luteum extracts, produced a distinct improvement in the running time and the cerebrospinal efficiency of both normal and ovariectomized rats, which improvement was noticeable soon after injection and was still present on the following day.

Journal of Radiology, Omaha

5: 109-145 (April) 1924

Physics and Biology of Intensive Deep Therapy. S. Feldman, New York.—p. 109.
Diagnosis of Ureteral and Renal Calculi. A. L. Smith, Lincoln, Neb. —p. 116.
Neurologic Complications of Dental Origin; Sequelae. A. D. Davis, Omaha.—p. 119.
Radiographic Examination of Alimentary Tract. R. A. Rendich, Brooklyn.—p. 124.

Journal of General Physiology, Baltimore

6: 501-624 (May) 1924

Mechanism of Vital Staining with Basic Dyes. M. McCutcheon and B. Lucke, Woods Hole, Pa.—p. 501.
Oxidation of Sodium Lactate by Hydrogen Peroxid. G. B. Ray, Boston.—p. 509.
Effect of Cystin and Glycocoll on Oxidation of Sodium Lactate by Hydrogen Peroxid. G. B. Ray, Boston.—p. 525.
Stereotropism in Tenebrio Larvae. W. J. Crozier, New Brunswick, N. J.—p. 531.
Relation Between Initial Rise and Subsequent Decline of Milk Secretion Following Parturition. S. Brody, C. W. Turner and A. C. Ragsdale, Columbia, Mo.—p. 541.
Valency Rule and Alleged Hofmeister Series in Colloidal Behavior of Proteins. III. Influence of Salts on Osmotic Pressure, Membrane Potentials and Swelling of Sodium Gelatinate. M. Kunitz, New York. —p. 547.
Nutritional Studies on Confused Flour Beetle, Tribolium Confusum Duval. R. N. Chapman, St. Paul.—p. 565.
Changes in Stability and Potential of Cell Suspensions. II. Potential of Erythrocytes. A. H. Eggerth, Brooklyn.—p. 587.
Growth of Thyroid and Postbranchial Body of Salamander, Ambystoma Opacum. E. Uhlenhuth, New York.—p. 597.
Agglutination of Erythrocytes. J. H. Northrop and J. Freund, New York.—p. 603.
Locus of Action of Veratrin. C. L. Wible, New Brunswick, N. J. —p. 615.

Locus of Action of Veratrin.—The facts presented by Wible show that veratrin produces its characteristic effects on an entire muscle through its excitatory action on medullated nerve fibers of the muscle and that it is very questionable whether veratrin is capable of affecting functional striated muscle fibers.

Journal of Urology, Baltimore

11: 435-524 (May) 1924

*Circulatory Changes in Hydronephrosis. F. Hinman and D. M. Morison, San Francisco.—p. 435.
*Treatment of Pyelonephritis with Indwelling Ureteral Catheters. H. C. Bumpus, Jr., Rochester, Minn.—p. 453.
*Two Cases of Carcinoma of Kidney with Origin in Papilloma of Renal Pelvis. R. H. McClellan, Pittsburgh.—p. 461.
"Putty" Kidney and Ureter: Case. A. Hyman, New York.—p. 473.
Method for Recording Contractions of Intact Human Ureter. H. R. Trattner, Cleveland.—p. 477.
Case of Cyst of Left Ureteral Orifice. F. W. Romaine, Washington, D. C.—p. 489.
*Epithelioma of Penis; Case. B. S. Barringer and A. L. Dean, Jr., New York.—p. 497.
*Keloid of Penis. E. O. Smith, Cincinnati.—p. 515.

Circulatory Changes in Hydronephrosis.—The normal vascular distribution and its relationship to the pelvis and tubular system in this type of kidney is reviewed by Hinman and Morison as a basis of study of hydronephrosis. The correlation of vascular changes with the progressive tubular alterations in hydronephrosis is essential to a complete understanding of hydronephritic atrophy. The anatomic study demonstrates that circulatory conditions constitute a considerable and important factor in the process.

Treatment of Pyelonephritis with Indwelling Catheters.—In one of the two cases reported by Bumpus, a 1:10,000 solution of acriflavine was employed, while in the other a 1 per cent. solution of acid fuchsin, which was proved germicidal for colon bacilli, was used. The patients were given enough fluids by mouth to insure a urine output of between 2,500 and 3,000 c.c. daily. If this was not obtained, subcutaneous saline and proctoclysis were employed. Hot packs and saline purges were given as indicated. Recovery resulted in both cases.

Primary Carcinoma of Kidney.—In the first of McClellan's cases, hematuria was the only outstanding symptom. All aids to diagnosis were futile. In the second case, the cardinal symptoms of kidney tumor were all three present, that is, mass, pain and hematuria. The diagnosis, clinically, was therefore less complicated. It is interesting to note that the excretion as indicated by phenolsulphonephthalein kidney function methods was practically the same in these two cases although the pathologic picture and outcome were quite different.

Epithelioma of Penis.—Barringer and Dean report the results of a statistical study of thirty-six cases of epithelioma of the penis in which radium was mostly used in the treatment. For the papillary carcinoma, without induration of its base, and without penetration of the tunic of the glans penis, surface radiation with radium was the method of choice. If there is induration and some penetration of the tunic of the glans, and but slight extension along the penis, implanted radium may cure. If there is extensive involvement of the glans penis, local amputation 2.5 cm. beyond the growth is indicated. Out of thirty-six cases, sixteen are disease-free from six to forty-eight months after treatment.

Keloid of Penis.—Smith records what he believes to be the only case of this kind in medical literature. The patient was a colored man, 33 years of age, syphilitic, who had received an injury to his penis during a game of football. After the game he noticed some swelling which rapidly grew larger until late that evening it was enormous in size and very painful. A physician was consulted who treated him for several days when it was decided to incise the swollen part. This was done and considerable foul smelling pus was released, followed by a troublesome hemorrhage. Later another incision was made and more pus obtained. On account of the enormity and density of the mass, amputation was advised to which suggestion he consented.

Kentucky Medical Journal, Bowling Green

22: 171-212 (June) 1924

Pulmonary Tuberculosis. O. O. Miller, Louisville.—p. 180.
Puerperal Infection. J. T. Reddick, Paducah.—p. 184.
Surgery in Duodenal Ulcer. F. W. Rankin, Louisville.—p. 194.
Erythema Multiforme Following Thyroidectomy. W. J. Young, Louisville.—p. 198.
Urinary Incontinence Following Spina Bifida Operation. M. Flexner, Louisville.—p. 199.
Placenta praevia. E. A. Stevens, Mayfield.—p. 200.
So-Called Primary Anemias. L. K. Baldauf, Louisville.—p. 205.
Fatal Case of Melena Neonatorum. B. C. Frazier, Louisville.—p. 208.
Thyroidectomy Under Local Anesthesia. L. W. Frank, Louisville. —p. 209.

Laryngoscope, St. Louis

34: 321-403 (May) 1924

Studies of Mastoid Disease by Roentgen Rays. M. S. Erasner, Philadelphia.—p. 321.
Id. Demonstration of Special Localizer. G. E. Pfahler, Philadelphia. p. 321.
Brain Abscess of Paranasal Sinus Origin. Two Cases. G. Berry, Worcester, Mass.—p. 346.
Prolonged Hemorrhage with Normal Coagulation and Bleeding Time. J. G. Callison, New York.—p. 354.
Case of Vincent's Angina. E. R. Roberts, Bridgeport, Conn.—p. 359.
Rôle of Bacteria in Production of Asthma and Other Allergy. M. J. Gottlieb, New York.—p. 363.

Maine Medical Association Journal, Portland

14: 201-218 (May) 1924

Sodium Thiosulphate in Arsphenamin Sensitization. B. B. Foster, Portland.—p. 201.
Case of Acute Leukemia. S. H. Kagan, Augusta.—p. 206.
Angioma Cavernosum Treated with Radium. R. B. Josselyn, Portland. —p. 211.

Medical Journal and Record, New York

119: 481-532 (May 21) 1924

Effects of Removal of Dental Infection on Chronic Gastro-Intestinal Disorders. G. R. Satterlee, New York.—p. 481.
*Myocardial Insufficiency as Primary Factor in Causation of Asthma Complex. M. M. Peshkin, New York.—p. 486.
Radiotherapy Technic. J. D. Gibson, Denver.—p. 490.
Roentgen Ray in Differential Diagnosis of Abdominal and Chest Conditions. L. Edeiken, Philadelphia.—p. 492.
Symptomatology and Diagnosis of Polycystic Kidney. J. M. Morrisey and F. W. Smith, New York.—p. 494.

Pulmonary Abscess Following Aspiration of Tooth Cured by Artificial Pneumothorax. R. J. Sisson, Syracuse, N. Y.—p. 497.
Impotence in Male. M. Huhner, New York.—p. 499.
Chemotherapy in Empyema. W. A. Gekler, Albuquerque, N. M.—p. 502
Thomas Paine on Yellow Fever. G. A. Stephens, Swansea, England. —p. 507.
Mendel, Apostle of Heredity. C. A. Clouting, London.—p. 509.

SUPPLEMENT

Surgical Treatment of Hemorrhage from Gastric and Duodenal Ulcers. H. J. Paterson, London.—p. cxiii.
Carcinoma of Rectum and Rectosigmoid. F. C. Yeomans, New York. —p. cxvii.
Portal Cirrhosis from Gastro-Enterological Viewpoint. A. Bassler, New York.—p. cxxi.
Instrument for Treatment of Peritonitis and for Intra-Abdominal Manipulations. C. L. Larkin, Waterbury, Conn.—p. cxxiv.
Food and Health. R. H. Rose, New York.—p. cxxvi.

Myocardial Insufficiency Cause of Asthma. — Peshkin expresses the belief that primary myocardial insufficiency asthma complex is an important etiological factor in certain types of asthma in individuals past middle life. An increased pulse rate, regular and persistent, in conjunction with a history of subjective symptoms indicating the earliest stages of myocardial failure and with the age of onset past 40, is diagnostic of primary myocardial insufficiency asthma, when other causes of asthma can be excluded. The administration of digitalis in adequate doses serves not only as a diagnostic measure, but is strikingly efficacious in relieving the symptoms. The injection of epinephrin hydrochlorid does not relieve the asthma and is contraindicated.

Radiology, St. Paul

2: 367-448 (June) 1924

*Roentgen-Ray Studies of Heart in Children. C. W. Perkins, New York. —p. 367.
Multiple Primary Carcinoma Simultaneously Involving Alimentary Tract. M. Kahn, Baltimore.—p. 374.
*Osseous Development in Endocrine Disorders. W. Engelbach and A. McMahon, St. Louis.—p. 378.
Renal Stones Permeable to Roentgen Ray. J. M. Culligan, Rochester, Minn.—p. 411.
Deep Therapy Installation. W. E. Chamberlain and R. R. Newell, San Francisco.—p. 414.
Lungs of Tuberculous Children. J. D. MacRae, Asheville, N. C.—p. 419.
Roentgen-Ray Studies of Fusospirochetal Infections of Lungs. I. Pilot, Chicago.—p. 424.

Roentgenoscopy of Children's Hearts.—Perkins has made a roentgen-ray study of 350 cases of cardiac disease in children and found this examination of material aid in confirming physical signs. It presents an accurate method of differentiating normal from abnormal hearts in children at different ages. Progress of the disease may be noted by successive examinations. As a method of differentiating between congenital heart disease and thymus glands disease it is invaluable. Associated pathologic conditions of the chest can be demonstrated. It offers valuable aid in differentiating cardiac enlargement from pericarditis with effusion.

Bone Development in Endocrine Disorders.—The general diagnostic information derived from the roentgenologic comparison of endocrinopathic and normal subjects has led Engelbach and McMahon to believe that the radiologic signs offer encouraging prospects of being of more value than the basal metabolism, blood chemistry, and other so-called specific and laboratory determinations.

South Carolina Medical Association Journal, Greenville

20: 111-138 (May) 1924

Antepartum Care. L. C. Shecut, Orangeburg.—p. 114.
Diabetes a Disease of Faulty Metabolism. G. R. Wilkinson, Greenville. —p. 116.
Pathology of Diabetes. F. H. Dieterich, Charleston.—p. 119

United States Naval Medical Bulletin, Washington, D. C.

20: 531-683 (May) 1924

Medical Department of Marine Corps East Coast Expeditionary Force During Fall Maneuvers of 1923. W. Chambers.—p. 531.
Pyelography. W. S. Pugh.—p. 559.
Hydronephrosis. R. B. Engle.—p. 567.
*Treatment of Mercuric Chlorid Poisoning; Calcium Sulphid as Chemical Antidote. J. M. McCants.—p. 572.
Construction of Vulcanite Partial Dentures. L. M. Desmond.—p. 578.
Chronic Duodenal Ulcer. O. A. Smith.—p. 581.
Malignant Endocarditis Following Fracture of Ribs: Case Report. B. M. Summers.—p. 586.
Incontinence of Urine. E. M. Harris, Jr.—p. 591.
Death Occurring During Treatment for Leprosy with Chaulmoogra Oil Derivatives. F. L. McDaniel.—p. 594.

Treatment of Mercuric Chlorid Poisoning.—In the case cited by McCants, treatment was not begun until about five hours after the poison, five antiseptic tablets, was taken. Treatment consisted of absolute rest in bed, catharsis, egg albumin, sodium bicarbonate and calcium sulphid, 10 grains intravenously. The mercuric chlorid tablets were considered as containing about 2 grains each, and since some of these were vomited, it is probable that the patient received a great excess of calcium sulphid over that actually required. It was also attempted to give calcium sulphid by mouth, but it has a disagreeable taste and odor (like rotten eggs), and the patient was unable to retain it for this reason. The next morning the urine had all the characteristics of an acute nephritis with the exception that the amount was not materially diminished. The uneventful recovery of the patient aroused considerable local interest in the calcium sulphid treatment. It was, therefore, determined to try this form of treatment on rabbits. The result was entirely negative. Every rabbit died; in fact, the treatment even seemed to hasten death. Only one rabbit receiving treatment lived as long as did the one receiving mercuric chlorid alone. It is believed that many cases reported to have been cured by the calcium sulphid treatment had not absorbed a fatal dose of mercuric chlorid. The fact that the patient usually vomits at least a part of the mercuric chlorid taken, frequently receives other treatment in addition, such as gastric lavage, large amounts of water, purgation, etc., should be considered. In spite of the fact that the experiments reflect against the calcium sulphid treatment it is still believed that this form of treatment may be a valuable one if one can be sure that he has a good sample of the drug. McCants is now trying to procure some chemically pure calcium sulphid which will be experimented with and made the subject of a future report.

Virginia Medical Monthly, Richmond

51: 67-132 (May) 1924

Banti's Disease: Case. A. G. Brown, Jr., Richmond.—p. 67.
Prostatectomy: Report of Twenty-Five Operations with One Death. J. S. Horsley and A. I. Dodson, Richmond.—p. 71.
Standard of Care During Puerperium. B. Lankford, Norfolk.—p. 76.
Gastro-Enterostomy in Retrospect. J. K. Corss, Newport News.—p. 81.
Etiology and Differentiation of Pneumonias. C. R. Grandy, Norfolk.—p. 83.
Diverticulitis of Colon. Case. C. Williams, Richmond.—p. 86.
Torsion of Appendix Epiploica Simulating Attack of Acute Appendicitis. F. Helvestine, University.—p. 88.
Insulin in Country Practice. J. C. Doughty, Onancock.—p. 92.
Spontaneous Pyopneumothorax Complicating Case of Lobar Pneumonia B. B. Jones, Richmond.—p. 98.
Traumatic Displacements of Uterus. J. M. Ropp, Roanoke.—p. 101.
Chronic Appendicitis as Cause of Acidosis in Children. S. McGuire, Richmond.—p. 105.
Diagnosis of Acute Abdominal Conditions. C. Z. Corpening, Suffolk.—p. 108.
Stomach Diseases. G. A. Caton, Newbern, N. C.—p. 111.
Analysis of One Hundred Consecutive Abdominal Operations. G. H. Reese, Petersburg.—p. 112.
Diagnosis of Cancer from Standpoint of General Practitioner. C. P. Palpating the Abdomen. W. R. Aylett, Newport News.—p. 117. Obenschain, New Hope.—p. 115.

West Virginia Medical Journal, Huntington

19: 225-280 (May) 1924

Osteo-Articular Factors in Back Pain. C. L. Hall, Washington, D. C —p. 225.
Sacral Backache of Intrapelvic Origin. A. L. Stavely, Washington, D. C.—p. 227.
Lumbar Pains and Their Radiations; Neuromuscular Factors. T. A. McWilliams, Washington, D. C.—p. 230.
Remote Factors of Pain in Back. W. C. Moore, Washington, D. C.—p. 234.
Lumbar Pain; Chest Factors. P. R. Adams, Washington, D. C.—p. 237.
Head Inuries. R. J. Wilkinson, Huntington.—p. 238.

19: 281-336 (June) 1924

Study of Infancy and Childhood. R. A. Ashworth, Moundsville.—p. 281.
Etiology and Pathology of Diabetes Mellitus. C. J. Reynolds, Bluefield. —p. 289.
Early Diagnosis of Diabetes. T. G. Tickle, Bluefield.—p. 292.
Diet in Diabetes. R. O. Rogers, Bluefield.—p. 294.
Insulin in Diabetes. A. H. Hoge, Bluefield.—p. 300.
Problems of Practitioner. J. C. Irons, Dartmoor.—p. 304.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 847-894 (May 17) 1924

Wasting Infant. R. Hutchison.—p. 847.
*Mechanical Effects of Enlargement of Pulmonary Glands. N. Neild.—p. 849.
*Arteriosclerosis. W. Russell.—p. 853.
*Acute Appendicitis and Intestinal Obstruction. H. H. Rayner.—p. 855.
*Acute Intussusception in Children. W. A. Thompson.—p. 858.
Treatment of Gastroduodenal Ulcer. H. H. King.—p. 859.
Tuberculous Caries with Abdominal Abscess. J. H. Grove-White.—p. 860.
Malformation of Vulva: Stenosis Vaginae: Cesarean Section. W. F. Rawson.—p. 860.
Case of Lingual Fibrolipoma. G. S. Woodman.—p. 860.

Effect of Enlargement of Pulmonary Lymph Nodes.—Neild ascribes to enlargement of lymph glands many lesions of the chest and its contents. When there is active congestion of the gland there is obstruction to the passage of lymph, and also the lymphatics may be nipped in the hilum of the glands and where the lymphatics pass obliquely through the capsule. Enlargement of the glands will, therefore, affect these tubular systems in the following order: lymphatics, veins, arteries and, lastly and least, the bronchioles. The part played by the enlargement of the glands in various pulmonary diseases is discussed.

Mechanics of Arteriosclerosis.—Russell reiterates his belief that the raising of aortic pressure results from constriction of the arterial wall and consequent diminution of the content of blood in the restricted arteries. The application of the doctrine of acidosis is effective in some of the clinical manifestations of arterial hypertonia, both when the arteries are sclerosed and when they are normal. Whatever the precise nature of the blood impurity, it is more than a vasoconstrictor, for it leads to obliterative endarteritis in the kidneys and to capillary occlusion.

Acute Appendicitis and Intestinal Obstruction.—Rayner believes that ileus, and that frequently of a mechanical type, is associated with acute appendicitis much more often than the literature would lead one to believe, and that some, if not many, of the deaths ascribed to general peritonitis or to intestinal paralysis are due primarily to mechanical ileus. Intestinal obstruction may occur at any period in the course of an attack of acute appendicitis except within, approximately, the first twenty-four hours. Therefore, the time to operate for appendicitis is within the first twenty-four hours, when the diagnosis is clear and the circumstances reasonably favorable.

Acute Intussusception in Children.—Forty-four of Thompson's fifty cases occurred in the first twelve months of life; 62 per cent. occurred between the fourth and the eighth month. The majority of cases started as ileocecal (60 per cent.), in which the last portion to be reduced was ileum; 44 per cent. were ileocecal. The jejunal type of intussusception described in so many textbooks was not met with in this series. The ileocolic type was the most fatal (two deaths out of four cases). Ten cases required resection because of irreducibility or strangulation. Of these, three recovered and are still well.

China Medical Journal, Shanghai

38: 255-340 (April) 1924

Eradication of Trachoma Among School Children in China. H. J. Howard.—p. 255.
Schistosomiasis Infection in Region of Changteh. G. Tootell.—p. 270.
Schistosoma Japonicum Infection in American Child. H. E. Meleney.—p. 274.
*Tartar Emetic in Schistosomiasis Japonica. G. T. Tootell.—p. 276.
*New Type of Ameba Parasitic in Man Observed in North China. E. C. Faust.—p. 278.
Study of Vital Capacity in Chinese. J. H. Foster.—p. 285.
Complete Inversion of Uterus Resulting from Submucous Myoma. Calculus in Female Urethra. J. R. B. Branch.—p. 295.

Tartar Emetic in Schistosomiasis.—In the treatment of *Schistosomiasis japonica*, Tootell has given tartar emetic intravenously in 1 and 2 per cent. solutions. The initial dose is 0.5 c.c., increasing in amount by 0.5 c.c. each day until on the tenth day the dose is 5 c.c. The symptoms after injection are the guide as to the amount to be given the next time. No patient was considered cured unless the specimen stools were negative for five consecutive days, and in some cases in which the infection had been heavy, it was required that the stools should be negative for a week. Fifty per cent. of all those receiving treatment were cured. The average number of days in hospital while taking treatment was thirty-eight. The average number of injections necessary to effect a "cure" was seventeen. Twenty-nine per cent were improved. One patient died from a complication.

New Parasitic Ameba: Caudameba Sinensis.—Four cases of dysentery are related by Faust, in which microscopic examination of the stools revealed swarms of *Endameba dysenteriae*, and among them small numbers of a new species. The ameba common to all these examinations in the inactive state was at first confused with *E. coli*, although it was measurably smaller than that species. Because of the uniqueness of this species of endameba, it seems necessary to Faust to regard it as a new species of dysentery producing protozoan, and to create for it a new genus, Caudameba, designating the species as *Caudameba sinensis*. The organism is characterized by viscous endoplasm, thin layer of ectoplasm, anteroposterior polarity, lobose anterior and attenuate posterior end drawn out into a caudostyle, which is surrounded at times by a group of protoplasmic projections more or less conspicuous, a constant movement of the organism away from the caudal end, and a nucleus near the anterior end of the body with minute chromatin granules just within the nuclear membrane, together with a karyosome specifically different from that of the described endamebae of man.

Japan Medical World, Tokyo

4: 87-110 (April) 1924

*Pirquet's Nourishment Theory. A New Method. M. Tsurumi and K. Nakatate.—p. 87.
*Neoneurogenic Theory of Heart Beat. S. Nukada.—p. 90.
Variation of B. Typhosus. T. Ohtsubo.—p. 91.
Tissue Immunity. S. Nukada.—p. 92.

Modification of Pirquet Index for Japanese.—Tsurumi and Nakatate assert that Pirquet's index number, expressing the condition of nourishment calculated by the height of body in sitting position, cannot be applied to the Japanese. Pirquet's nourishment method by calculating the area of intestine has doubtful value because it is based on the supposition that there exists a certain definite relation between the length of intestine and the height of the body in the sitting position of each individual. The authors have studied the causes of the errors in the calculation of the index of condition of nourishment of an individual, and devised a substitute method which is applicable to the Japanese.

Theory of Heart Beat.—Experiments with Limulus heart have convinced Nukada that the formation and conduction of the heart impulse is a function of the nerve tissue in the hearts of vertebrates, including mammals. In the light of pyelogenetic development, one may consider the so-called conduction system in mammals as an auricular muscle bundle richly supplied with nervous elements, which has penetrated deeply into the ventricle and which is on that account separated throughout by fibrous tissue from the ventricular muscle.

Journal of Tropical Medicine and Hygiene, London

27: 97-108 (May 1) 1924

*Experiments on Erysipelas. M. Crendiropoulo.—p. 97.
Duration of Relative Immunity in Malaria of Birds. S. Mazza.—p. 98.

Filtrable Virus in Erysipelas.—Crendiropoulo took twenty drops of clear fluid from light incisions into the skin of the shoulder of an erysipelas patient; this fluid was cultivated in bouillon and saline solutions (one in three). The mixture was at once filtered through paper powdered with infusoria earth, and again through a Berkefeld filter. One cubic centimeter of this filtrate was injected under the skin of a rabbit's ear. At the same time, 2 c.c. of the broth (non-filtered), diluted (one in three), was injected under the skin of the ear of another rabbit. The ear of the second rabbit showed a slight reddening toward evening, but was quite normal the following day, while the one which had received the filtered liquid showed a manifest inflammation. This

idiopathic inflammation is transmissible in series. These and other observations lead Crendiropoulo to the conclusion that there is a filtrable virus in erysipelas, which in the great majority of cases is accompanied by the streptococcus, and which produces its peculiar manifestations by a close symbiosis.

Lancet, London

1: 987-1040 (May 17) 1924

*Mechanism of Larynx. V. E. Negus.—p. 987.
Function of Hemoglobin in Body. A. V. Hill.—p. 994.
*Posology of Beverages. P. L. Violle.—p. 998.
*Congenital Cardiac Malformation with Pulmonary Tuberculosis. T. Campbell and H. I. Coulthard.—p. 1001.
*Strangulation of Ileum by Inflamed Appendix. I. M. Guillaume.—p. 1002.
Congenital Bony Occlusion of Choanae. A. Evans.—p. 1002.
Treatment of Renal Tuberculosis. C. H. S. Frankau.—p. 1015.
Malaria During Treatment of General Paralysis. W. Yorke and J. W. S. Macfie.—p. 1017.

Mechanism of Larynx.—Negus attempts to explain that the larynx has taken up a certain position in order to subserve functions of olfaction and respiration, and that the peculiar situation it occupies in man can be understood if various structural characteristics of the human being are taken into account. The epiglottis was evolved for purposes of olfaction; the aryepiglottic folds and cartilages of Wrisberg to provide a lateral food channel for the passage of liquids in animals which masticate their food; and the cartilage of Santorini as an important part of the mechanism by which the esophagus is suspended and opened. Negus thinks that the attachment of the esophagus to the cartilage of Santorini has an important function in the mechanism of phonation.

Posology of Beverages.—As the result of his researches, Violle states that in cardiovascular affections beverages should be taken with patient reclining, and preferably on awaking in the morning and on retiring for the night. As far as possible, drinks should be taken in small quantities at a time and not during meals. In a general way, beverages should be reduced in proportion to the degree of cardiac insufficiency present, or, in other words, in proportion to the difference between orthostatic and clinostatic elimination. In delayed absorption from the digestive tract, (*a*) gastric dilatation may exist. In this case beverages should be taken only a long time after meals, and in small, divided doses, the patient being recumbent. If (*b*) intestinal affections, such as profuse diarrhea, be present, beverages need not be reduced, but should be so prescribed as to bring the total twenty-four hour quantity of urine as nearly normal as possible. If (*c*) pathologic, and especially hepatic, portal hypertension exist, the quantity of liquids which produce most abundant elimination of urine should be determined by making a number of trials. Preferably beverages should not be taken with meals in order not to add physiologic hypertension to the portal hypertension already present. Physiologic opsiuria may thus be avoided. In humoral disturbances, and especially in retention due to chlorids, the patient should not receive chlorids with the food, and the beverages should be nicely adjusted to the reduced but remarkably uniform elimination commonly present in cases of this kind, at least in fully developed dropsy accompanying nephritis. In purely renal affections the suggestions already given should be followed, especially with reference to functional elasticity and capacity of the kidney. In exceptional and atypical cases, which occur frequently, consideration of the many factors which may be present, with estimation of the importance of each one, should permit suitable regulation of the beverages to meet the needs of the case in hand.

Congenital Malformation of Heart with Pulmonary Tuberculosis.—The prolongation of life for twenty-eight years in the case of a patient suffering from grave congenital cardiac defects and the terminal association of this condition with pulmonary tuberculosis were the main features in Campbell and Coulthard's case. It was also remarkable that a person with such cardiac conditions was able to attempt to work—first as a pit-pony lad and later to engage in light labor in a ganister work. The chief symptoms were cough, pain in the chest, dyspnea and cyanosis, the evidences of cardiac disease dating from birth and those of pulmonary tuberculosis from June, 1922. The face, lips, ears and fingers displayed the characteristic lividity. There was no marked dyspnea at rest. On each side of the sternum a bulging was evident between the levels of the third and sixth ribs. The area of precordial dulness showed no extension to the left and there was no thrill. A prolonged blowing systolic murmur was audible, and the second pulmonic sound was noticeably weak. The patient was confined to bed. One morning he was found in a state of grave syncope, having risen from bed in spite of prohibition, and five hours later a fatal result ensued. At the necropsy the right auricle showed a wide patency of the foramen ovale, admitting the index finger with ease, also well developed eustachian valve, which was continuous with the valve of Thebesius. The opening of the tricuspid orifice was smaller than usual. The striking features of this case are: (1) the marked stenosis of the pulmonary artery through the close adhesion of the semilunar valves; (2) the occurrence of the rare warty form of endocarditis affecting the adherent pulmonic valves; (3) the considerable size of the aperture in the interventricular septum; and (4) the marked patency of the foramen ovale.

Strangulation of Ileum by Inflamed Appendix.—In Guillaume's case a large loop of greatly distended ileum, 2 feet long, was strangulated by the appendix looped around it in a light ring, with the bulbous, swollen, and almost gangrenous tip adherent to its base at the cecum and containing a fecal concretion.

Medical Journal of Australia, Sydney

1: 405-428 (April 26) 1924

*Intestinal Parasites of Man in Australia. W. C. Sweet.—p. 405.
*Intelligence of Criminal Insane. S. J. Minogue.—p. 407.
*Symptomless Otitis Media of Infancy and Childhood: Postmortem Observations. R. Southby.—p. 410.
Nursing Problem. J. Barrett.—p. 412.
Carcinoma of Pancreas in Australia: Analysis of Sixty-One Cases. G. Cameron.—p. 414.

Intestinal Parasites of Man in Australia.—Of 248,721 persons examined by the Australian Hookworm Campaign, 48,256, or 19.4 per cent., were found to be infected with hookworms. Infections with *Trichuris trichiura* were found in 9,924 persons, a rate of 4 per cent. The infection rate of *Oxyuris vermicularis* was 1.4 per cent.; for *Ascaris lumbricoides* it was 2.3 per cent.; *Oxyuris incognita,* 0.4 per cent.; *Hymenolepis nana* and *Strongyloides stercoralis,* 0.2 per cent. each; *Tenia saginata* and *Tenia solium,* 0.02 per cent. Fifty-five examinations yielded unknown ova.

Intelligence of Criminal Insane.—From a study of forty-five patients certain broad deductions are drawn by Minogue: that persons of superior intelligence are more prone to murder; that the low grade imbecile is more prone to indecent assault and robbery and, as a rule, does not belong to the habitual criminal class, evidently because his mental deficiency is so obvious that it is recognized at the first crime and he is put under proper care and control; that those who have numerous convictions against them and are mentally deficient, are either the high grade imbeciles or morons. In such cases the mental deficiency is not apparent on superficial examination and can only be demonstrated by the methods of Binet-Simon or their modifications or by the taking of a careful personal history. If the routine examination of the intelligence of criminals were carried out, the mentally deficient could be found early. They could then be put under proper care and control and by careful method in the majority of cases useful tasks could be taught them and work useful to the community could be performed. This segregation of patients is in the great majority of cases no hardship on them. As long as they are fed and comfortable, their environment matters little to them; they are devoid of ambition, their lives are aimless and futile.

Symptomless Otitis Media.—The chief points submitted by Southby as a result of his investigation are: (1) frequency of otitis media in infants and young children without accompanying signs or symptoms (adults with ears in a similar condition would almost certainly be seriously ill and show obvious signs of the condition); (2) occurrence of otitis media with no concomitant purulent meningitis and, on the other hand, the frequency of perfectly clean ears in the presence of purulent meningitis; (3) rarity of intracranial complications.

Archives des Maladies du Cœur, Paris

17: 193-256 (April) 1924

History of Conducting System in the Heart. D. Pace.—p. 193.
*Cardiorespiratory Synchronism. G. Galli.—p. 208.
Total and Partial Tachycardia. R. Lutembacher.—p. 222.
Radioscopy of Left Side of Heart. G. Chaumet.—p. 228.

Cardiorespiratory Synchronism.—Galli publishes tracings of synchronous action of the heart with the breathing. He discusses the anatomic and functional relations between the respiratory and circulatory centers, and believes that the latter dominate oftener than the former. A rational proportion between the frequency of the heart beat and of respiration is not infrequent in cardiopaths. It indicates a disturbance in the medulla oblongata.

Bulletin de l'Académie de Médecine, Paris

91: 627-652 (May 20) 1924

*The Sydenham Tercentennial.—p. 629.

The Sydenham Tercentennial.—This issue is devoted to the ceremonies in honor of Thomas Sydenham, 1624-1689, described in the Paris Letter, June 21, 1924, p. 2062.

Bulletins de la Société Médicale des Hôpitaux, Paris

48: 687-741 (May 16) 1924

*Arrest of Hemorrhage with Sodium Citrate. M. Renaud.—p. 687.
Action of Sodium Citrate on the Organism. M. Renaud.—p. 689.
Hemihypertrophy of the Face. A. Léri and Sartre.—p. 690.
Spontaneous Cure of Pulmonary Tuberculosis. J. Génévrier.—p. 694.
Multiple Localizations in Tertiary Syphilis. L. Babonneix and E. Azerad.—p. 698.
Skin Tuberculin Reaction in Diabetics. Labbé and Boulin.—p. 701.
Pernicious Malaria. Dargein and Lancelin.—p. 702.
*Glycuronuria Test of Liver Function. Brulé et al.—p. 707.
Pyloric Stenosis from Gallstone. C. Mirallié and Thibault.—p. 715.
Pneumococcus Septicemia. Merklen and Wolf.—p. 718.
Blood Germ Count in Septicemia. L. Boëz.—p. 722.
Spirochetes in Stools. G. Delamare.—p. 725.
Diphtheria Anatoxin in Immunization. Darré et al.—p. 729.

Arrest of Hemorrhage by Intravenous Injection of Sodium Citrate.—Renaud reports the almost immediate arrest of profuse hemorrhages by intravenous injection of from 10 to 30 c.c. of a 30 per cent. solution of sodium citrate in twenty-one cases of uterine cancer, but no effect was apparent in three cancer cases with anemia of the pernicious type. The hemorrhage in several cases of tuberculous hemoptysis was arrested promptly and permanently by this means. He regards it as the most effective and most reliable weapon at our command at present in treatment of hemorrhage.

Glycuronuria in Test of Liver Function.—Brulé, Destrées and van Dooren mix 5 c.c. of urine with 2.5 c.c. of saturated solution of mercuric acetate. They add 5 c.c. of pure hydrochloric acid to 5 c.c. of the filtrate, and keep it for twelve minutes in a water bath at 100 C. Then they add 0.25 c.c. of a 1 per cent. solution of naphthoresorcin, and continue the water bath for three more minutes. They cool the solution rapidly, shake for a long time with 10 c.c. of ether, and wait for fifteen minutes before comparing the tint with the colorimetric standard. This modified technic gives satisfactory results (violet color) even with urines in which other processes of examination give a red tint or no color at all. Prolonged boiling seems to destroy the glycuronic acid more readily in patients with liver disturbance than with a normal liver. The urine in normal subjects is still distinctly colored after boiling for an hour or hour and a half with the naphthoresorcin, while in cases of jaundice and cirrhosis (an exception was one case of hypertrophic cirrhosis) decoloration occurs after thirty or forty minutes of boiling. In acute and profound lesions of the liver, the early decoloration coincides with other signs of liver insufficiency. During convalescence from a disease affecting the liver, this urine reaction may be positive when other symptoms of hepatic insufficiency are absent. It must be borne in mind that the maximum elimination of glycuronic acid is in the morning, the minimum in the evening. The quality of the glycuronic acid seems to differ also during the twenty-four hours, being more resistant to boiling in the morning than in the evening. Urine voided after 8 a. m. is best for the test.

Comptes Rendus de la Société de Biologie, Paris

90: 1129-1204 (May 9) 1924

Filtrable Forms of Tubercle Bacilli. J. Valtis.—p. 1130.
Fixation Reaction in Heated Serums. P. Laval.—p. 1132.
*Enhancing Potency of Vaccine Virus. W. Barikine et al.—p. 1134.
*Experimental Hermaphrodism. A. Lipschütz and Voss.—p. 1139.
*Idem. Idem.—p. 1141.
*No Local Vaccination from Diphtheria Toxin. C. Zoeller.—p. 1147.
Remote Results of Resection of Vas Deferens. E. Retterer and S. Voronoff.—p. 1148.
Mechanism of Peptone Shock. Garrelon and Santenoise.—p. 1150.
*Distensibility of the Liver. R. Azoulay and A. Jacquelin.—p. 1157.
Gastric Chemistry in the New-Born. Banu et al.—p. 1159.
Local Anaphylactic Reaction in Scarlet Fever with Breast Milk from Convalescents. T. Mironesco and M. Guntzburg.—p. 1167.
*Sarcoma Cells Growing Outside the Organism. A. Fischer.—p. 1181.
*Cholesterol in Blood and Spinal Fluid. F. Goebel.—p. 1191.
Heredity by Blood Group in Susceptibility to Diphtheria. H. Hirszfeld et al.—p. 1198.
Experimental Research on Bacteriophages. B. Fejgin.—p. 1202.

Choice of Virus to Make Smallpox Vaccine More Potent.—Barikine and his co-workers recommend the selection of the most fully developed and typical vaccinia pustules in order to enhance the virulence of the virus and render it more durable, always employing the heifer. This selected virus, injected hypodermically, killed 2 per cent. of the heifers in four or five days, and the infection was not restricted to the skin but was general, affecting spleen, lymphatic glands and kidney. Injection of the virulent brain tissue into the testis produced a specific orchitis in rabbits. The infection can be transmitted by successive passages to new rabbits, and the reaction in them produces a specific exanthem, and a specific keratitis if the emulsion is injected in the cornea. The diagnosis of the infection was made not only by the specific eruption but by histologic examination of internal organs. Their conclusion is that the tropism of vaccinia virus is a phenomenon which depends on the virulence of the infection.

Intrarrenal Technic for Ovary Grafting in Experimental Hermaphrodism.—Lipschütz and Voss expose the dorsal aspect of the kidney, leaving the peritoneum intact, and make a narrow channel in which they implant the fragments of the ovary. The operation takes very little time, and is followed, they say, by a maximal endocrine functioning of the ovaries. Their experiments with this intrarenal method were made on more than fifty guinea-pigs.

Antagonism of Sex Glands in Experimental Hermaphrodism.—Lipschütz and Voss emphasize that the presence of both testes exerts a depressing influence on the hormone action of an implanted ovary. In the rare cases in which the hormone action was positive, the period of latency was very long. In Sand and Krause's experiments on animals with both testes, the period of latency ranged from five to eighteen weeks; with unilateral castration, from five to seven weeks. The authors say that in their seventeen positive experiments with removal of part or all of the testes, the longest period of latency was two and a half weeks and in some of the animals it was only ten or twelve days.

Diphtheria Toxin and Local Vaccination.—Zoeller applied an active diphtheria toxin repeatedly to the same spot by intradermal injection in guinea-pigs. He also used the Schick test in three cases twice in the same place at a two months' interval. Each injection was accompanied by a positive and similar skin reaction. There was nothing to indicate that local immunity had been conferred.

Distensibility of the Liver in Normal Conditions and in Atrophic Cirrhosis.—Azoulay and Jacquelin distended the livers with a water pressure equal to the venous pressure in cases of heart insufficiency. The normal liver can hold up to 1,400 gm. of water, but only from 100 to 150 gm. of water could be injected into the livers after death from atrophic cirrhosis. This inability to expand proves the grave disturbances in the liver produced by heart insufficiency in atrophic cirrhosis.

Cultivation in Vitro of Sarcoma Cells.—Fischer says that the cultivation of malignant tissue is technically difficult by the methods in vogue. The cells lower the viscosity of the blood plasma which is used as the culture medium. This, in turn, arrests the growth of the cells, and they die. He experimented to see whether the invasion of a normal tissue by malignant cells does not occur outside of the organism as

well as in vivo. He placed a fragment of muscle tissue from a healthy chicken in direct contact with the sarcoma tissue and the neoplasm cells attacked the muscle tissue and multiplied intensively. By continuously supplying fresh muscle tissue, the proliferation can be maintained indefinitely (six months to date).

Cholesterol in Cerebrospinal Fluid and in the Blood in Mental Disease.—Goebel used a modification of the Autenrieth-Funk method. In eleven cases of general paralysis the amount of cholesterol in the cerebrospinal fluid was from 0.005 to 0.051 gm. per hundred cubic centimeters and in the blood, in four cases, from 0.208 to 0.217 gm. The increase of cholesterol in the cerebrospinal fluid evidently depends on chemical changes in the brain and on the lesions in the vessels through which the cholesterol passes from the blood into the cerebrospinal fluid. Similar excessive findings were obtained also in cerebral syphilis and, even more pronounced, in dementia praecox. Chemical analysis of the brain in this disease gave the same findings as in general paralysis (high cholesterol and low phosphates). The cerebrospinal fluid in epilepsy before a seizure contained an increased amount of cholesterol (0.058 to 0.15 gm. per hundred c.c. of fluid); otherwise only traces of cholesterol were found. In mental disease of inorganic origin, the content of cholesterol in the fluid and in the blood was normal. Also in nervous diseases (lethargic encephalitis, Charcot's disease and cerebellar ataxia) the amount was not increased. Goebel found no connection between the increase of cholesterol in the cerebrospinal fluid or in the blood and a positive reaction to the Wassermann test.

Gynécologie et Obstétrique, Paris

9: 413-492 (May) 1924

Indications for Vaginal Hysterectomy. De Rouville.—p. 413.
*Study of Syphilitic Placenta. C. Mönckeberg and M. Avilés.—p. 419.
*Nonmetastatic Cancers. D'Allaines and I. Bertrand.—p. 433.
Operation for Broad Ligament Pregnancy. T. Remzy.—p. 440.

Histopathology of the Syphilitic Placenta.—Mönckeberg and Avilés, in their study of fifty syphilitic placentas and 570 microscopic examinations, found infarcts, endarteritis, necrosis of the villi, thrombosis, hemorrhages and diminished capacity of the blood lakes. These findings, through malnutrition and defective hematosis, cause grave disturbances in the physiology of the embryo, and its death.

Coincidence of an Ovarian Epithelioma with a Nonmetastatic Cancer of the Uterus.—D'Allaines and Bertrand report a case in which the epithelioma of the ovary—developed, as believed, from the wolffian bodies—and the villous epithelioma in a horn of the uterus were not of metastatic origin. Their hypothesis is that the epithelioma of the ovary exerted an action on the uterus, developing an epithelioma from a slight epithelial reaction. They give five photomicrograms.

Médecine, Paris

5: 565-656 (May) 1924

Tuberculosis and the Trend of Treatment in 1924. F. Bezançon.—p. 565.
German Conception of Pulmonary Tuberculosis. De Jong.—p. 595.
Tuberculosis in Argentina as a Social Problem. E. Etchegoin.—p. 601.
Influence of Age on Pulmonary Tuberculosis. E. Sergent.—p. 609.
Heredity of Predisposition to Tuberculosis. A. Philibert.—p. 616.
*Calcium Metabolism in the Tuberculous. M. P. Weil.—p. 626.
*Thyroid Functioning and Tuberculosis. E. Coulaud.—p. 631.
Vagotonia and Sympathicotonia in Tuberculosis. A. Jacquelin.—p. 634.
Radiography of Bronchi. Azoulay and Tribout.—p. 639.
Climatotherapy in Pulmonary Tuberculosis. A. Vaudremer.—p. 646.

Calcium Metabolism in the Tuberculous.—Weil emphasizes that the decalcification in tuberculosis is produced not by an inadequate supply of calcium, but by defective calcium fixation, depending on an insufficiency of endocrine secretions, vitamins and light.

Thyroid Function and Tuberculosis.—Coulaud believes that thyroid insufficiency produces some resistance to tuberculosis, as thyroid hyperfunction exerts an unfavorable effect on the progress of this disease.

Paris Médical

477-492 (May 24) 1924

Tetragenus Septicemia. E. Vaucher and P. Woringer.—p. 477.
Foreign Bodies in Esophagus and Bronchi. J. Guisez.—p. 480.
*Heredosyphilitic Hydrocele. Vallery-Radot and Salès.—p. 485.
*Diathermy in Cancer. H. Bordier.—p. 488.

Heredosyphilitic Hydrocele.—Vallery-Radot and Salès found in the hydrocele of a nursling, presenting clinical syphilitic signs and positive Wassermann reactions of the blood, cerebrospinal and hydrocele fluids, sclerosis and specific lesions of the vessels. They emphasize that positive histologic findings in these cases are rare.

Diathermy in Cancer.—Bordier obtained satisfactory results using diathermy in cancer of the mouth or pharynx. One patient with cancer of the tonsil has been cured for more than five years. Another with recurring cancer of the roof of the mouth has been kept in good condition for four years by occasional application of diathermy. He cites nineteen other published cases to show that it may be of great help in therapy if handled correctly, with adequate electrodes and sufficient intensity.

493-508 (May 31) 1924

Herpes Zoster and Febrile Herpes. C. Achard.—p. 493.
*Muscle and Nutrition. L. Binet.—p. 501.
Respiratory Insufficiency. G. Rosenthal.—p. 505.
Sprains and Dislocations. A. Schwartz.—p. 506.

Muscle and Nutrition.—Binet deals with the function of muscles from the viewpoint of nutrition. The muscles may be considered as a reserve of water, proteins and fat, and especially of glycogen. They contain proteolytic, lipolytic and glycolytic ferments. The latter have been found even in mummies. He believes with Richet that ingestion of raw meat has a favorable influence on the muscular development.

Presse Médicale, Paris

32: 465-472 (May 28) 1924

*Intra-Uterine Implantation of Ovary. Tuffier and Letulle.—p. 465.

Ovarian Implantation.—Tuffier describes the technic he used in twenty-nine cases in implanting in the uterus the whole or part of an ovary with its vascular pedicle intact, after bilateral salpingectomy. This operation helps to maintain regular menstruation and the possibility of fecundation in women with double salpingitis. Tuffier gives five illustrations of the operation, and his co-worker Letulle supplies three photomicrographs of the implanted ovary and uterus removed later in one case, proving the continuance of function in the ovary thus implanted in the uterus wall, and hence the possibility for fecundation.

Progrès Médical, Paris

329-352 (May 31) 1924

*The Solar Reflex. D. Santenoise and H. Codet.—p. 329.
*Hemorrhagic Pleurisy. Chauffard.—p. 330.
Alcoholic Delirium. R. Benon.—p. 332.
Treatment of Peritonitis. S. Solieri.—p. 336.

The Solar Reflex.—Santenoise and Codet advise testing the tonus of the sympathetic by means of the solar reflex. The fasting subject lies on his back with open mouth, breathing freely but without forced movements. A sphygmomanometer (preferably with recording attachment) is applied to his arm. The physician compresses with both hands the middle epigastric region, pushing it toward the diaphragm. The reflex is positive if the oscillations of the pulse diminish. This sign of increased sympathetic tonus occurs in persons with vasomotor instability, paroxysmal secretory disturbances, and palpitations, such as are most marked in exophthalmic goiter and in the menopause.

Hemorrhagic Pleurisy.—Chauffard demonstrates a patient with a benign hemorrhagic pleural exudate. The mild type is frequent in alcohol addicts.

Revue Française d'Endocrinologie, Paris

2: 82-151 (April) 1924

*Internal and External Pancreas Secretion. M. R. Castex.—p. 81.
*Relation of Thymus to Large Veins. M. Lucien and J. Guibal.—p. 90.
Suprarenal Tumors and Pseudohermaphrodism. K. H. Krabbe.—p. 103.
*Tissue Metabolism in Endocrine Derangement. J. Koopman.—p. 114.

Internal and External Pancreas Secretion.—Castex publishes two cases of splenomegalia with disturbances of tryptic digestion. Injections of an extract of spleen were followed by sufficient pancreatic secretion.

Relation of Thymus to Large Veins.—Lucien and Guibal studied the topography of the thymus with especial regard to the large veins of the base of the neck. Their relations are variable but, especially with a well developed thymus, are sufficiently close to account for brain disturbances and asphyxia in the new-born and in so-called thymus death.

Tissue Metabolism in Endocrine Derangement.—Koopman found the same difference between the sugar of the arterial and venous blood in exophthalmic goiter as in normal subjects. The sugar level was equal in the vessels in hypothyroidism and in two patients with pluriglandular insufficiency. Organotherapy restored the normal difference.

Schweizer Archiv für Neurol. u. Psychiatrie, Zurich

14: 163-336, 1924

Psychic Sequelae of Epidemic Encephalitis. H. Steck.—p. 163.
Gas Poisoning and Cerebral Barrier. F. de Allende-Navarro.—p. 199.
*Histology of Dementia Praecox. V. M. Buscaino.—p. 210.
Psychanalysis of Schizophrenia. A. v. Muralt.—p. 216.
Descending Root of the Trigeminus and the Cervical Cord. C. T. van Valkenburg.—p. 238.
Connections Between the Convolutions. M. Minkowski.—p. 255. Cont'd.
Optic Nystagmus and Cerebral Diagnosis. H. W. Stenvers.—p. 279.
*Glioma and Injury of Skull. C. v. Monakow.—p. 289.
Pontobulbar Region. K. Schaffer.—p. 301.

Histology of Dementia Praecox.—Buscaino describes peculiar grape-shaped conglomerates in the white and extracortical gray substance of the brain. He found them in dementia praecox, various types of amentia including delirium tremens, and in the brain of rabbits poisoned with histamin. He also found some amins in the urine of such patients, and believes that they originate in the duodenum.

Optic Nystagmus and Cerebral Diagnosis.—Stenvers examined patients for the presence of the nystagmus produced by looking at a rotating object. The quick phase—as in railway nystagmus—is toward the side from which the object comes. This phenomenon is lacking in cerebral hemianopia on the hemianopic side. It is also lacking in other lesions between the anterior and posterior poles of the cortex. Hemianopia due to lesions of the optic tract does not impair the reflex.

Glioma and Injury of Skull.—Monakow publishes his expert testimony on the causal connection between an injury of the right side of the head and a glioma of the same side, the first symptoms of which became manifest a year and a half later. He concludes that the causal relation is very probable.

Schweizerische medizinische Wochenschrift, Basel

54: 473-492 (May 22) 1924

*The Physician's Personality and Psychotherapy. A. Maeder.—p. 473.
Surgery of Hypertrophied Prostate. A. Wydler.—p. 479.
Action of Sugar and Salt on Germs. A. Meier.—p. 480. Cont'd.
Acute Aortitis. L. Oetiker.—p. 482. Conc'n.

The Physician's Personality and Psychotherapy.—Maeder deplores that medicine has not escaped the blight of the mechanical trend in this age of machinery. Certain physicians are so blinded by the progress of diagnostic methods that they believe in isolated affections of the heart or of the stomach, and forget completely the other somatic and the psychic condition of the patient, which may be also responsible for the outbreak of the symptoms. The action of the personality of the physician is the central point of the art of medicine.

Archivio Italiano di Chirurgia, Bologna

9: 221-344 (April) 1924

Treatment of Large Irreducible Hernia. G. Pototschnig.—p. 221.
*Experimental Decortication of the Testis. O. Roggiero.—p. 237.
*Acute Metastatic Abscess in Kidney. A. Avoni.—p. 266.
*Cysts in the Neck. L. Baccarini.—p. 279.
*Artificial Sunlight in Surgical Sterilization. E. Casati.—p. 336.

Effects of Decortication of the Testis.—In the sixteen rabbits subjects of the experiments, the seminiferous epithelium always suffered first and foremost, and fibrous atrophy of the testis was the outcome.

Acute Metastatic Abscess in the Kidney.—There was a history of occasional furuncles in Avoni's patient, a girl, aged 15, but the acute abdominal clinical picture occurred in the midst of apparent health. The high fever and chills compelled nephrectomy. Both streptococci and staphylococci were found in the abscess.

Cysts in the Neck.—None of the usual theories as to the causation of cysts and fistulas in the neck can be applied to some of the eleven cases reported by Baccarini. The cyst was noted at birth in three, including one in the side of the neck; before the age of 5 in five of the children, and before 10 in the others.

Ultraviolet Rays for Sterilization of Hands, Instruments, Etc.—Casati exposed his hands, soiled with pus, to a quartz mercury vapor lamp, and in eight minutes the scrapings from the hands gave no cultures when inoculated in broth culture mediums. Control experiments were constantly positive. Instruments, dressings, etc., showed the same potent sterilizing action. He suggests that the whole operation might be done under the ultraviolet rays in this way, maintaining continuous sterilization by this means of the field of operation and the surgeon's hands.

Riforma Medica, Naples

40: 457-480 (May 19) 1924

Fight Against Tuberculosis. E. Maragliano.—p. 457.
Pustulous Herpetiform Eruption After Pemphigus. Buquicchio.—p. 458.
*Protein Therapy. F. Piccininni and G. Scaglione.—p. 459.
*Dental and Facial Deformities and Chest Development. C. D'Alise.—p. 462.
Case of Sodoku. S. Corinaldesi.—p. 463.
Purulent Postpneumonic Thyroiditis. F. Viola.—p. 465.
Surgery and Pregnancy. E. Aievoli.—p. 466.

Protein Treatment in Anthrax, Typhoid and Plague.—Piccininni and Scaglione injected guinea-pigs with the minimum lethal dose of anthrax, plague and typhoid virus. Injections of 1 c.c. of normal horse serum or of diphtheria antitoxin or of 0.2 c.c. of milk had no influence on plague or anthrax. The action was favorable in typhoid where 25 per cent. of the animals recovered. In those that died late, only few germs were found.

Dental and Facial Deformities and Chest Development.—D'Alise found a lower vital capacity of the lungs in children with deficient articulation of teeth. He believes that breast nursing is a factor in the normal development of the face and oral cavity. The present tendencies in physical education overlook the head, though it ought to be regarded as the most important part of the body. Besides this, the production of athletes entails an unbalanced, one-sided development which is in itself pathologic.

Lisboa Médica, Lisbon

1: 1-64 (Jan.) 1924

*The Vestibule of the Duodenum. Custódio Cabeça.—p. 1.
*Tardy Postencephalitic Parkinsonism. Egas Moniz.—p. 15.
*Case of Precocious Puberty. A. Flores.—p. 22.
Interpretation of Roentgen Findings in Normal Lungs and with Incipient Tuberculosis. Bénard Guedes.—p. 41.

"Medical Lisbon."—This dignified new monthly has been founded by eight professors of the University of Lisbon, with three assistant professors as the editorial staff. The subscription is 75 milreis. Address Dr. Almeidas Dias, Hospital de Santa Marta, Lisbon. French summaries accompany most of the articles.

The Duodenum.—Custódio Cabeça asserts that from every point of view the first portion of the duodenum should be considered as forming part of the stomach. The intestine does not begin until Ochsner's ring. Above this the duodenum forms part of the digesting apparatus of the stomach.

Postencephalitic Parkinsonism.—In Moniz' cases the epidemic encephalitis had not been diagnosed at the time, but the parkinsonian symptoms, which developed after an interval of two, two and a half and three years, threw light on the nature of the forgotten disturbances. Two of the patients were children of 13 and 16, and the other was a man of 43, totally incapacitated for self-support by the parkinsonism. In all, the remembrance of transient diplopia gave the clue. The course seemed to be like that of syphilis, the patients being now in the tertiary phase.

Precocious Puberty.—The boy is now 16 but the manifestations of puberty became apparent between 2 and 3 years of age. At 4 the genitals resembled those of an adult. By the eighth year he had a moustache and bass voice. In this year pneumonia was followed by epileptic seizures. Mental tests show age of 4 or 5. All of the usual causes of premature

puberty can apparently be excluded, and Flores regards it as primary in this case. Some roentgenograms of epiphyses are reproduced.

Semana Médica, Buenos Aires

1: 631-682 (April 10) 1924

*Professional Secrecy in State Employees. F. de Veyga.—p. 631.
*Derivations in Electrocardiography. T. Padilla.—p. 640.
*Nonsurgical Exploration of Liver Function. J. W. Tobias.—p. 653.
*Rheumatism of Syphilitic Origin. S. Libarona Brian.—p. 660.
Bismuth in Treatment of Syphilis. M. Helmann.—p. 665.

Professional Secrecy and State Employees.—De Veyga is emeritus professor of legal medicine at Buenos Aires, and his comment on a recent clash of authority between a health officer and the public school authorities is that professional secrecy does not vary with positions or other factors but is an absolute, intangible, immutable fact admitting of no gradation or attenuation. The health officer in question declined to specify his diagnosis in making out a health certificate, merely certifying that the applicant had been under his care as a physician during the month and would require about three months more of treatment.

Derivations of the Heart Electric Current.—Padilla's profusely illustrated study of the electrocardiogram forms a chapter of a book now in press.

The Duodenal Tube in Diagnosis and Treatment of Disease of the Gallbladder and Liver.—Tobias expatiates on the clinical value of the Meltzer-Vincent Lyon method for exploration of the function of the biliary apparatus. He accepts their theory rather than Einhorn's in explanation of the findings.

Pathognomonic Sign of Rheumatism of Syphilitic Origin.—Libarona Brian calls attention to the constant reaction of rheumatic pains to injections of arsenicals or mercury when the "rheumatism" is of syphilitic origin. There may be exacerbation or improvement, but there is always some clinical response. Two or three intravenous or intramuscular injections may be required for absolute certainty, and we must not be misled by the exacerbation during menstruation or from damp weather or digestive upset. He tabulates the findings in forty cases of rheumatism, all testifying to the absence of this prompt reaction in toxic and other rheumatism, even when toxic rheumatism occurs in a syphilitic. In the thirty-six cases giving a positive response, the pains were exaggerated in thirteen and they improved in nineteen.

1: 683-734 (April 17) 1924

Nonsurgical Drainage of the Biliary Apparatus. F. C. Arrillaga and J. A. Etchepareborda.—p. 683.
*Treatment of Ulnar Paralysis. P. Jáuregui.—p. 692.
Derivation in Electrocardiography. T. Padilla.—p. 702.
Infanticide and the Penal Code. A. Podestá.—p. 708.
Bacteriology of Duodenal Fluid. Tobías and Fernández Ythurrat.—p. 709.
Homosexuality and Platonic Love. L. Sirlin.—p. 711.
The Principles for Deep Radiotherapy. J. F. Merlo Gómez.—p. 715.
Suggestion for Municipal Sanatoriums. A. Casotto.—p. 720.
Radiology of Lacrimal Passages. M. Miranda Gallino.—p. 722.
Trachoma in Cordoba Province. A. Urrets Zavalia.—p. 729.

Treatment of Ulnar Paralysis.—Jáuregui gives an illustrated description of his method of shifting the ulnar nerve to a bed in the aponeurosis. In two of the three cases described the external condyle had been fractured years before. In the third case the bilateral operation was done for neuritis from progressive ankylosis of both elbows. The outcome was excellent in all.

Deutsche medizinische Wochenschrift, Berlin

50: 705-746 (May 30) 1924

Observation, Statistics and Experiment. K. Kisskalt.—p. 705.
*Cultivation of Agent of Foot and Mouth Disease. F. Guth.—p. 707.
*Rabbit Unit of Insulin. W. Löwe.—p. 711.
"Etiology of Measles." G. Caronia.—p. 712.
*Sclerosis of Pulmonary Artery in Infant. J. Wätjen.—p. 713.
Chronic Infectious Endocarditis. P. Ormos.—p. 715.
Traumatic Local Infection with Sputum. H. Grau.—p. 716.
Rye Awn and Appendicitis. Niedermeyer.—p. 716.
Fetal Skeleton in Uterus. Oldag.—p. 716.
*Disinfection of Surgical Instruments. F. Brüning.—p. 717.
*Endothoracal Removal of Foreign Body. W. Pyrkosch.—p. 717.
*Treatment of Pulmonary Gangrene. A. Albacht.—p. 718.
Treatment of Affections of Lacrimal Passages. Heimann.—p. 719.
Healing of a Syphilitic Ulcer. H. Mühlpfordt.—p. 720.
Diseases of Digestive System. G. Lepehne.—p. 720.
*Physicians in Soviet Russia. N. Semaschko.—p. 722.
Welfare Center for Neurotics. Häffner.—p. 724.
German Colonial Medicine. Steudel.—p. 724. Cont'n.
Emigration to North America. A. Kay.—p. 725.

Cultivation of the Causal Organism of Foot and Mouth Disease.—Guth cultivated the virus in liquid mediums, and succeeded in reproducing in certain guinea-pigs what seemed to be typical foot and mouth disease. Following Frosch and Dahmen's positive transmission experiments from apparently negative inoculations in animals, he induced the disease in other guinea-pigs. He believes that this confirms the assumption that the virulence of the virus is attenuated by culture and increased by passage.

Rabbit Unit of Insulin.—Löwe finds that some batches of insulin have practically no action in man, though they lower the blood sugar in rabbits.

Sclerosis of Pulmonary Artery in Infants.—Wätjen describes a case of sclerosis of the arteries of the lungs in an infant 1 year of age. The foramen ovale was open and the right ventricle much enlarged.

Disinfection of Surgical Instruments.—Referring to Nye and Tracy's case and his own previous experiments, Brüning warns against disinfection of surgical instruments with alcohol.

Endothoracal Removal of Foreign Body.—Pyrkosch removed a broken pneumothorax needle from the pleural cavity with a thoracoscope.

Treatment of Pulmonary Gangrene.—Albacht's patient recovered after injections of neo-arsphenamin although the sputum did not contain spirochetes or fusiform bacilli. The drug acts favorably also in putrid bronchitis.

Physicians in Soviet Russia.—Out of the 33,000 physicians registered in Soviet Russia, 29,500 are, according to Semaschko, in public service. Their salaries are so small that the state allows them to do private practice. The soviets hope, nevertheless, to abolish private practice by more extensive public health work, especially for children. The morbidity of physicians on the eastern front was almost 100 per cent. and the mortality 70 per cent. The central executive committee of the soviets showed its appreciation by proposing to other soviet organs to try to improve the material conditions of the physicians in their districts.

Jahrbuch für Kinderheilkunde, Berlin

106: 1-64 (May) 1924

Serodiagnosis of Active Tuberculosis. W. Hellmann.—p. 1.
Stability of Serum During Infections. L. Mendel.—p. 15.
Culture of Bacillus Bifidus. R. Rühle.—p. 21.
Pin-Shaped Bacilli of Meconium. E. Schüssler.—p. 33.
*Pathogenesis of Alimentary Anemia. F. Loebenstein.—p. 39.

Pathogenesis of Alimentary Anemia.—Loebenstein made extracts of feces from infants and children according to Seyderhelm's method. The feces of breast-fed infants were nontoxic. The extracts from the feces of artificially fed children produced neurotoxic and anemic symptoms in rabbits. Stools from healthy or anemic children showed no differences.

Klinische Wochenschrift, Berlin

3: 961-1008 (May 27) 1924

Place of Formation of Bilirubin Outside the Liver. L. Aschoff.—p. 961.
*Palpatory Perceptions and Innervation. E. v. Skramlik.—p. 967.
*Atypical Funicular Myelitis. R. Henneberg.—p. 970.
Local Stimulation Treatment of Epididymitis. Büsing.—p. 976.
Differential Diagnosis of Jaundice. A. Adler.—p. 978.
*Hematin in Fetus and New-Born. Haselhorst and Papendieck.—p. 979.
*Compression of Arteriovenous Aneurysms. Gerlach and Harke.—p. 980.
Treatment of Skin Tuberculosis in Children. K. Keilmann.—p. 982.
*"Nervous" Gastro-Intestinal Affections. L. Hofbauer.—p. 984.
*Diarrhea in Feverish Infants. F. Demuth.—p. 985.
"Etiology of Aphthous Stomatitis." B. Peiser.—p. 985.
Test for Serum and Tissue Lipase. P. Rona and A. Lasnitzki.—p. 986.
*Tissue Respiration in Vertebrates. S. Büchner and E. Grafe.—p. 986.
Treatment of Spinal Meningitis. F. Geiges and B. Legewie.—p. 987.
*Pharmacotherapy of the Heart in Surgery. A. W. Meyer.—p. 988.

Palpatory Perceptions and Innervation.—Skramlik investigated the causes of the error occurring when we try to bend a solid plate without looking. We have the feeling that the plate is really bent. The moment the eyes are opened, this

feeling vanishes. He attributes it to central impulses and not to peripheral causes such as deformation of the skin by the pressure or muscle sensations.

Atypical Funicular Myelitis.—Henneberg describes atypical cases of combined degeneration of the columns of the spinal cord. They are due to some toxic action (pernicious anemia, lathyrism, ergotism and probably avitaminosis) and are next in frequency to multiple sclerosis. Paresis, hypotonia or hypertonia, and modification of the reflexes are common.

Hematin in Fetus and New-Born.—Haselhorst and Papendieck confirm to an unexpected extent Hellmuth's observation of the occasional presence of hematin in the serum of the new-born. They found it in 84 per cent. of their 118 cases. Its amount increases with the standing of the blood. It persists in the first two weeks of life, and is also present in the fetus.

Compression of Arteriovenous Aneurysms.—Gerlach and Harke produced an increase in the blood pressure and bradycardia by compression of an arteriovenous aneurysm, even during intraspinal anesthesia. Therefore, the increased pressure is not of reflex origin. They agree with Weber in assuming that the communication between a larger artery and vein necessitates an increased work of the heart to keep up the blood pressure. If the communication is interrupted, the same effort of the heart raises the pressure. The bradycardia is due to the action of the pneumogastric nerves.

"Nervous" Gastro-Intestinal Affections.—Hofbauer observed distention of the stomach and intestine by air in rats after occlusion of the nose. He points out that the digestive disturbances observed occasionally with affections of the nose do not necessarily indicate a "reflex neurosis."

Prevention and Treatment of Diarrhea in Feverish Infants.—Demuth continued his investigations on the value of hydrochloric acid in prevention and treatment of diarrheas in infants with fever. Regardless of the origin of the fever (rhinopharyngitis, pneumonia, infected eczema, pyelitis), the diarrhea and vomiting were prevented or arrested. The infants were fed with half or full milk with 5 per cent. cane sugar, and he added to 100 c.c. of the undiluted milk 8 drops of the officinal (12.5 per cent.) hydrochloric acid. This concentration is too weak to cause any flocculation of the casein.

Tissue Respiration in Vertebrates.—Büchner and Grafe found with Warburg's method a surprising constancy in the respiration of various tissues (liver, muscle, intestine and kidney) in man, mouse, frog and rabbit: One gram of dry weight used up 0.2 c.c. of oxygen per minute. Changes of p_H from 5 to 9 had practically no influence.

Pharmacotherapy of the Heart in Surgery.—Meyer has used systematically and successfully preventive treatment with digitalis before operations. It apparently does not hurt good hearts, and is indicated in asthenia, vagotonia, obesity, in elderly patients with weak heart sounds or arrhythmia, with the goiter heart, and, above all, in exophthalmic goiter. He believes that the "heart death" in these patients can be prevented by digitalis. He lost only two patients operated on for exophthalmic goiter—the only two who had not been given digitalis. It may also prevent postoperative thrombosis, embolism and pneumonia. Venesection is indicated in hypertension. Quinin (up to 0.5 gm. daily) should be tried in angiospastic conditions before deciding on sympathectomy.

Medizinische Klinik, Berlin

20: 733-768 (June 1) 1924

Synthetic Camphor. F. Kraus.—p. 733.
Problem of Specificity in Dermatology. F. Wirz.—p. 735.
Antireaction of Nerve Centers. O. Pötzl.—p. 737. Conc'n.
Stenosis of the Aorta. III. H. Gerhartz.—p. 740.
*Superior Versus Inferior Tracheotomy. C. B. Hörnicke.—p. 741.
*Bismuth Treatment of Syphilis. G. Jähnke and E. Schäcker.—p. 742.
Malaria Treatment of Juvenile Paralysis. G. Herrmann.—p. 745.
*Psoriasis After Bites of Parasites. W. Löwenfeld.—p. 746.
*Chronic Poisoning with Bromural. C. Jacob.—p. 747.
"Treatment of Gastric and Duodenal Ulcer." H. Flörcken.—p. 748.
Reply. K. Isaac-Krieger.—p. 749.
Treatment of Oxyuriasis. Weinberger.—p. 750.
*Leukocytes and Typhus Virus. F. Breinl.—p. 751.
Excretion of Iodin and Salicyl by the Stomach. O. Ascher.—p. 752.
Medicolegal Estimation of Traumatic Hysteria. H. Engel.—p. 753.
Survey on Gynecology. W. Liepmann and W. Brusten.—p. 755.

Superior Versus Inferior Tracheotomy.—Hörnicke finds that the danger of accidents, especially bleeding, is less in superior tracheotomy, which should be the only one performed by the practitioner.

Bismuth Treatment of Syphilis.—Jahnke and Schäcker failed to find, as a rule, any bismuth in the cerebrospinal fluid after intramuscular injections.

Psoriasis After Bites of Parasites.—Löwenfeld's patient contracted an itching affection of the legs—probably the so-called trombidiasis—from bites of the mite *Leptus autumnalis*. The itching parts became the site of an eruption of psoriasis, which he did not have before.

Chronic Poisoning with Bromural.—Jacob describes a case of chronic poisoning with bromural. The symptoms (except the serologic) resembled progressive paralysis.

Leukocytes and Typhus Virus.—Breinl incubated typhus virus from guinea-pigs, with leukocytes. He found a lowering or destruction of the virulence of the agent.

Monatsschrift für Geb. und Gynäkologie, Berlin

66: 79-204 (May) 1924

*Eclampsia and Spastic Uremia. F. Volhard.—p. 79.
Dienst's Pregnancy Reaction. H. Gänsle.—p. 109.
Treatment of Placenta Praevia. L. Schoenholz.—p. 112.
Treatment of Fibrous Uterine Polyps. M. G. Sserdjukoff.—p. 143.
Legal Standing of Midwives. E. Bierhoff.—p. 165.

Eclampsia and Spastic Uremia.—Volhard identifies the pathogenesis of eclampsia of pregnancy and of the spastic type of uremia (pseudo-uremia). The contraction of blood vessels is the cardinal point in both. It does not necessarily always entail hypertension. He cites Hülse's investigations on the vascular action of blood plasma. No epinephrin was found, but the serum from nephritis with hypertension and from eclampsia increased the action of epinephrin. Serum from patients with "red hypertension" acted like normal serum. Hülse also found, with Strauss, that the serums which sensitized the Trendelenburg-Laeven frog preparation contained peptones. These peptones are comparatively atoxic, but cause indirectly a contraction of blood vessels. Volhard considers intravenous injections of up to 8 gm. of magnesium sulphate in a 2 per cent. solution as superior to morphin and chloral hydrate. He warns emphatically against hypertonic sodium chlorid infusions.

Monatsschrift für Kinderheilkunde, Leipzig

28: 1-96 (April) 1924

Congenital Stenosis of the Pylorus. Fedinski.—p. 1.
Instability of the Plasma in Infants. G. Török.—p. 14.
Protein Fraction of Plasma. J. Duzár and S. Rusznyák.—p. 25.
*Transmission of Varicella to Rabbits. O. Tezner.—p. 39.
*The Chest in Tuberculous Children. J. Peiser.—p. 42.
Annular Granuloma. C. Leiner.—p. 46.
Bacteriology of Infant's Urine. H. Kleinschmidt.—p. 52.
Tuberculosis in Infants. L. Moll.—p. 58.
*Mongolian Idiocy in Cousins. H. Pogorschelsky.—p. 65.
Clinical Aspects of Rickets. E. Aschenheim.—p. 69.

Transmission of Varicella to Rabbits.—Tezner injected the contents of a varicella pustule into the spinal cord of a rabbit. The rabbit died after seventeen days with signs of meningitis. Cultures were negative. An emulsion of the cord produced a similar affection in another animal.

The Chest in Tuberculous Children.—Peiser found a narrow chest in almost 50 per cent. of the children with a primary tuberculous lesion in the apex of the lungs.

Mongolian Idiocy in Cousins.—Pogorschelsky observed mongoloid symptoms in two cousins (aged 18 and 5 months).

Münchener medizinische Wochenschrift, Munich

71: 633-666 (May 16) 1924

*Etiology of Multiple Sclerosis. C. Behr.—p. 633.
The Peroneal Spine of the Calcaneus. M. Budde.—p. 636.
Insulin Treatment. O. Lutz.—p. 638.
Muscle Function and Ions. W. Lahm and K. Merdler.—p. 641.
Thrombosis of Vena Cava. E. Grafe.—p. 643.
Epidemic Meningitis and the Vegetative System. H. Böwing.—p. 644.
Treatment of Syphilis. J. Resch.—p. 648.
*Treatment of Erysipeloid. H. Mühlpfordt.—p. 649.
"Research on Twins and Extraneous Factors." H. W. Siemens.—p. 649.
"Gastro-Duodenal Tube." T. Bársony and L. v. Friedrich.—p. 649.
Exophthalmic Goiter and Myxedema. H. Curschmann.—p. 649.
*Treatment of Paralysis from Spondylitis. E. Borchers.—p. 652.

Etiology of Multiple Sclerosis.—Behr inoculated rabbits with scrapings from the ethmoidal cells of patients with beginning ocular signs of multiple sclerosis. The animals then presented symptoms resembling, to a certain extent, the human disease.

Treatment of Erysipeloid.—Mühlpfordt recommends ultraviolet rays in the treatment of erysipeloid.

Treatment of Paralysis from Spondylitis. — Borchers reviews the surgical methods of treatment of spondylitic paralysis. The cause of the compression of the cord (abscess, bone or epidural granulations) should be ascertained first. Conservative methods must be employed after the operation as the basis of treatment.

Wiener klinische Wochenschrift, Vienna

37: 511-536 (May 22) 1924

*Paravertebral Injections. F. Brunn and F. Mandl.—p. 511.
Gastric Secretion and the Gallbladder. P. Walzel-Wiesentreu and F. Starlinger.—p. 514.
Crossed Reflexes in Brain Affections. C. Mayer.—p. 515.
*Phlorizin Glycosuria in Children. B. Steiner and R. Beck.—p. 517.
*Syphilitic Exanthem and Application of Heat. A. Perutz.—p. 519.
Droplet Infection in Diphtheria. J. Mayrhofer-Grünbühel.—p. 520.
*Iodin and Gas Metabolism. P. Liebesny.—p. 521. Conc'n.
Infant Welfare Work. S. Peller and E. Stransky.—p. 522.

Paravertebral Injections to Combat Visceral Pains.—Brunn and Mandl had favorable results with paravertebral injections of 10 or 15 c.c. of a 0.5 per cent. solution of procain in gallbladder and renal colics. Four patients with angina pectoris were relieved for months; two only for days. Three of them, who had been injected in the second and the fourth thoracic interspaces, suffered for several hours from dyspnea and fever. The injection requires skill and caution to avoid the spinal canal and the pleura. Cases have been reported in which the injection had been made into the spinal cord!

Phlorizin Glycosuria in Children.—Steiner and Beck injected 2 mg. of phlorizin in fifty children; six of them had no glycosuria, but two of these reacted with hypoglycemia and three with hyperglycemia. Among the rest, the blood sugar increased in about one third and decreased in the others. These findings prove that the action of phlorizin is not restricted to the kidneys.

Syphilitic Exanthem and Application of Heat.—Perutz describes the history of a woman with an almost universal syphilitic papulous exanthem. Only the abdominal region, where heat pads had been previously applied, was exempt. Pharmacologic skin tests showed that this area had a decreased irritability, which accounts for the absence of the eruption. There are no grounds for assuming a healing influence from the heat.

Iodin and Gas Metabolism.—Liebesny determined the basal metabolism after ingestion of iodids. Large doses gave variable results in healthy subjects. In hypothyroid goiter patients the oxygen consumption increased to normal figures. The majority of the hyperthyroid patients responded to the iodin with a lowering of the metabolism. In some of them, however, the metabolism increased excessively. In such cases the iodin must be gradually reduced and discontinued. Iodin treatment is valuable, but has to be done under permanent control of the metabolism, especially with exophthalmic goiter.

Zeitschrift für klinische Medizin, Berlin

100: 1-362 (May 15) 1924

Calcium Treatment. R. Kaewel.—p. 1.
*The Erythrocytes as Gage of Shock Treatment. J. Vorschütz.—p. 10.
Colloid Instability in the Plasma. Steinbrinck.—p. 39.
*Pancreatic Lipemia. E. Joël.—p. 46.
*Examination of Capillaries. F. Groedel and G. Hubert.—p. 61.
Etiology of "Endocrine" Arthritis. Neumann and Landé.—p. 85.
Thyrosexual Insufficiency. W. Schöndube.—p. 97.
*Jaundice of the New-Born. P. Schwartz.—p. 117.
*Stomach Function Test. E. Woenckhaus.—p. 135.
*Lack of Vitamins in Human Diet. G. Shinoda.—p. 151.
*Phenylcinchoninic Acid in Leukemia. E. Joël.—p. 170.
*Stenosis of Aortic Isthmus and Endocarditis. E. Focken.—p. 179.
Diagnosis of Poliomyelitis. S. T. Sörensen.—p. 190.
*Epidemics in Russia. C. Seyfarth.—p. 203.
*The Blood Pressure. N. Tolubejewa and L. Pawlowskaja.—p. 223.
*Water-Wheel Murmur. R. Stahl and W. Eatzian.—p. 232.
*Hyperacidity and Chlorid Metabolism. B. Molnár and L. Csáki.—p. 239.
*Treatment of Leukemia. F. Sternberg and S. v. Gönczy.—p. 257.
*Thyroid and the Size of the Erythrocytes. E. Földes.—p. 268.
Chemical Examination of Cerebrospinal Fluid. L. Csáki.—p. 271.
Stomach Function Test in Hyperacidity. J. Vándorfy.—p. 282.
Pilocarpin and the Eosinophils. E. Baráth.—p. 286.
Iodin Index of Urine. Z. Rausch.—p. 293.
Histopathology of the Sympathetic. L. Paunz.—p. 300.
Optic Activity of the Serum. S. Hofhauser.—p. 305.
Gastric and Rectal Sensitization. K. Hajós.—p. 309.
*Myelin and Cells in Sputum. R. Engelsmann.—p. 315.

The Erythrocytes as Gage of Shock Treatment.—Vorschütz determined the protein nitrogen of the erythrocytes after injections of foreign proteins. He found that it increased in cells which contained little and decreased in cells which contained more protein than the controls. He considers this as evidence of a tendency to regain the lost dynamic balance.

Lipemia.—Joël reports a case of pronounced lipemia in a young man with anacidity of the stomach. A disturbance of the pancreas was probable. He believes that this gland regulates the distribution of fat in the body.

Clinical Examination of Capillaries.—Groedel and Hubert do not believe in any pathognomonic pictures of the capillaries or their blood stream except in pure arteriosclerosis without kidney disease. The hairpin-shaped capillaries are distinctly elongated in this affection. Very narrow arterial parts are always pathologic, and occur especially with sclerosis of the kidneys.

Jaundice of the New-Born.—Schwartz reviews the facts and theories relating to icterus of new-born infants. He concludes that the condition is caused by destruction of blood during birth.

Stomach Function Test.—Woenckhaus found in healthy subjects fairly constant values of chlorids in the stomach content after a water or alcohol test meal. Bile interferes with this test, giving misleading results. The average concentration of chlorin after 300 c.c. of a 5 per cent. alcohol solution was 0.11 per cent. In ulcers it increased to an average of 0.2 per cent. In cancer and pernicious anemia the values were within low normal range (0.09 to 0.1 per cent.).

Lack of Vitamins in Human Diet.—Shinoda gives a clear survey on various clinical and experimental conditions attributed to lack of vitamins. He points out the wide variations of symptoms, and explains this by the differences in the individual predisposition, and especially by the relative proportions of the main constituents of the food. Human beriberi, for instance, is caused chiefly but not exclusively by the absence of vitamin B. It is also conditioned by a prevalence of vegetables (carbohydrates) in the food in proportion to fat and protein. A disturbance of the salt metabolism is also present.

Phenylcinchoninic Acid in Leukemia.—Joël publishes metabolic data from three leukemic patients kept on a constant diet. Roentgen irradiation increased the elimination of nitrogen, uric acid and phosphates. Phenylcinchoninic acid caused only a transitory increase in uric acid. It has no leukolytic action.

Stenosis of Aortic Isthmus and Endocarditis.—Focken concludes from his two observations that stenosis of the isthmus of the aorta predisposes to a chronic infectious endocarditis, as Mühlhaus has pointed out in other malformations.

Epidemics in Russia.—Seyfarth describes his experiences in Russia in 1922 and 1923. There is no more famine, and consequently the morbidity and mortality, including infectious diseases, are rapidly declining. About 3,000,000 Russians died between 1918 and 1922 from typhus. A short railroad trip or prison detention was followed almost certainly by the disease. The mortality of physicians infected with typhus was higher than that of the other professions. The epidemic had practically died out in 1923. Relapsing fever had a surprisingly high mortality (8.1 per cent. in 1918 and 4.9 per cent. in 1919) which was due partly to the lack of arsphenamin, and partly to mixed infection with paratyphoid. Typhoid was not prevalent, because the army and part of the population had been vaccinated. Cholera was controlled by vaccination. He reproduces three propaganda posters and believes that they were successful. The slogan was: "Death is powerless only against vaccination." Tearing down the poster was classed as a contrarevolutionary action. Smallpox was

equally under control in 1923. Brightly colored posters representing the blindness and the disfigurement from smallpox scars contributed much to the popular desire to be vaccinated. He did not hear of any opposition to vaccination. Malaria seems to be the next imminent danger.

Action of Water and Food on Blood Pressure.—Tolubejewa and Pawlowskaja found an initial increase in blood pressure after meals; this is probably of reflex origin. This phase is followed by a lowering caused by the dilatation of the abdominal vessels. The changes are slight in healthy subjects, but pronounced in hypertension. They can serve for a diagnosis of a beginning affection.

Water-Wheel Murmur.—Stahl and Entzian describe a case of water-wheel phenomenon in a man with probable air embolism, and a similar sound heard in a woman with fluid and air in the pericardium.

Hyperacidity as Disturbance of Chlorid Metabolism.—Molnár and Csáki found a slower elimination of sodium chlorid in patients with hyperacidity than in the controls. Thyroid preparations increased the excretion of chlorids. They confirm the favorable effects of a salt-free diet in these cases.

Indications for Treatment of Leukemia.—Sternberg and Gönczy produced leukopenia by diathermy applied to any part of the body. The proportions of the various cells were not changed, and therefore they explain it as a change of distribution of the leukocytes in the body. They confirm the same transitory phenomenon in leukemia. In some patients treated with roentgen rays or benzene, diathermy was followed by a hyperleukocytosis. They consider this as a contraindication to the roentgen rays.

The Thyroid and the Size of the Erythrocytes.—Földes found an increased volume of erythrocytes in hypothyroid conditions and a decreased volume in hyperthyroidism. He attributes it to an acid shifting of the plasma reaction in the former and an alkaline in the latter.

Myelin and Cells in Sputum.—Engelsmann describes the epithelial cells from the alveoli occuring in the sputum. They contain droplets of fatty acids but not of myelin.

Zeitschrift für Krebsforschung, Berlin

21: 197-260 (May 16) 1924

*Gas Metabolism of Carcinomatous Rats. Händel and Tadenuma.—p. 197.
Colloid Cancer of Lung. G. Eismayer.—p. 203.
*Tar Cancer and Regeneration of Cells. H. T. Deelman.—p. 220.
Ovarian Cancer in a Monkey. G. Jung.—p. 227.
*Immunization with Thorium X. M. Yamauchi.—p. 230.
*Neoplastic Diathesis. H. Auler.—p. 241.
*Vegetable Tumors from Lactic Acid. Blumenthal and Meyer.—p. 250.
Heliotherapy of Cancer. W. Becker.—p. 253.
Idem. F. Blumenthal.—p. 255.

Gas Metabolism of Carcinomatous Rats.—Händel and Tadenuma found a lowered basal metabolic rate (average 10 per cent.) in carcinomatous rats with large tumors. This is probably a sign of the toxic action of the carcinoma. Roentgen irradiation increased the metabolic rate in these animals.

Tar Cancer and Regeneration of Cells.—Deelman observed the beginning of cancer formation in the edges of healing wounds in mice treated with tar. He quotes a similar observation of Lipschütz, and points out that the localization of tar cancer in other animals may be determined by accidental injuries.

Immunization with Thorium X.—Yamauchi found no parallelism between the leukopenia produced by thorium X and the immunity of mice against implantation of cancer.

Neoplastic Diathesis.—Auler points to the frequency of benign tumors, especially of the skin, in cancer patients. Warts and nevi are common, and the cancer often originates in them also. He gives his reasons for the probability of a connection between the involution of the sex organs and the cancer formation. Tumors are very frequent in pseudohermaphrodites. A large percentage of carcinomatous women show stigmata of virilism, especially hypertrichosis.

Vegetable Tumors from Lactic Acid.—Blumenthal and Meyer produced tumors on carrots by the application of a 1 per cent. solution of lactic acid.

Zentralblatt für Chirurgie, Leipzig

51: 887-934 (April 26) 1924

*Periarterial Sympathectomy. C. Bayer.—p. 887.
Invagination of the Small Intestine into the Stomach After Anterior Gastro-Enterostomy. K. Bachlechner.—p. 889.
Mania for Operations in the Hysterical. A. Drescher.—p. 891.
Operative Treatment of Dilatation of the Cervical Portion of the Esophagus. H. Krekel.—p. 893.
Intracutaneous Reaction in Carcinoma. O. Boyksen.—p. 894.

Periarterial Sympathectomy.—Bayer reports his two cases of periarterial sympathectomy. In the first case, a chronic ulcer of the lower leg, as large as the palm of the hand, had been treated for three years in various hospitals without success. In seven weeks following sympathectomy for a distance of about 3 cm., in Scarpa's triangle, the ulcer had completely healed. In the first case he closed the wound at once, but as it suppurated in the deeper tissues, in the second case he drained for forty-eight hours, which he now recommends. The operation is not to be regarded as absolutely harmless, and should not be undertaken without positive indications.

Zentralblatt für Gynäkologie, Leipzig

48: 833-895 (April 19) 1924

*Eclampsia. W. Fürst.—p. 834.
Disturbances of Metabolism in the Pregnant. Rissmann.—p. 856.
*Contractions of the Fallopian Tube. H. Hirschberg.—p. 858.
*Artificial Vagina. M. Mori.—p. 859.
*The Endometrium and Ovarian Dysfunction. Temesváry.—p. 860.
Subserous Myoma in Gravid Uterus, as Content of an Incarcerated Umbilical Hernia. Else Riedel.—p. 866.

Eclampsia and the Justification for Active Treatment.—Fürst regards delivery at once as the most effective treatment, since it does away with the pregnancy, the etiologic factor of eclampsia, and eliminates the injurious effects of labor. Often abdominal cesarean section offers the best chances for the preservation of the child. All eclampsia patients should be sent to the hospital.

Contractions of the Fallopian Tube.—Hirschberg describes the rhythmical contractions observed in a fallopian tube some time after removal on account of tubal abortion. The direction of the wavelike contractions was toward the uterus, as would be expected from a physiologic standpoint. He has watched for the same phenomenon after similar operations but has never been able to note anything like it since.

Artificial Vagina.—Mori expresses surprise at Neugebauer's statement that an artificial vagina constructed from the small intestine may, in a few months, become entirely impassible. He immediately inquired of three patients for whom he had constructed an artificial vagina by that method several years ago, as to the present functioning, and all three patients declared that they were entirely satisfied with the results.

The Endometrium in Relation to the Etiology and Diagnosis of Dysmenorrhea and Sterility Due to Ovarian Dysfunction.—Temesváry discusses the changes in the endometrium as dependent on the activity of the ovaries and as furnishing therefore evidence of the state of ovarian functioning.

48: 1121-1168 (May 24) 1924

Structure and Function of Corpus Luteum. R. Jaffé.—p. 1122.
Ovarian Chocolate Cysts from Aberrant Epithelium. K. v. Oettingen.—p. 1129.
*Obstetric Compression of the Aorta. F. v. Mikulicz Radecki and W. Lueg.—p. 1132.
Pregnancy and Carcinoma. F. Kok.—p. 1136.
Serologic Determination of Sex of Fetus. W. Lüttge.—p. 1139.
Psychology in Gynecology. W. Liepmann.—p. 1139.
Omentum in Ectopic Pregnancy. F. Scheid and E. Bukofzer.—p. 1141.
Hemogram in Septicemias. K. Sommer.—p. 1143.
Lobelin in Oligopnea. H. Hellendall.—p. 1151.
Birth Control. F. Eberhart.—p. 1155.

Effect of Compression of the Aorta on Uterine Contractions.—Mikulicz-Radecki and Lueg say that their experiments with aorta compression in seven rabbits and one cat produced a temporary increase of uterine contractions, followed by a decreasing of tone and complete inertia. They explain that the compression by arresting the blood circulation causes anemia accompanied by grave disturbances from deficiency of oxygen and an oversupply of carbon dioxid. Their conclusion is that the compression of the aorta, helpful in postpartum hemorrhages, may exert a depressing action on uterine contractions.

Zentralblatt für innere Medizin, Leipzig

45: 385-408 (May 17) 1924

*The p_H of the Urine and Kidney Function. P. Starcke.—p. 386.

The p_H of the Urine and Kidney Function.—Starcke confirms the parallelism between the findings with Beckmann's method for determination of hydrogen-ion concentration of the urine and those of other kidney function tests. Yet the gastric secretion influences the results in a misleading way. A subacidity may produce a curve of hydrogen-ion concentrations which resembles almost perfectly that in insufficiency of the kidneys.

Casopis lekaruv ceskych, Prague

63: 797-832 (May 24) 1924

*Torsion Spasm in Encephalitis. K. Henner.—p. 797.
*Physiology of the Thyroid. J. Charvát.—p. 801.
*Typhoid Fever. A. Doskocil.—p. 805.
Periarterial Sympathectomy. L. Hybner.—p. 808. Conc'n.
Cancer of the Esophagus. E. Kliment.—p. 815. Cont'n.
Prevention of Rhinoscleroma. J. Cisler.—p. 817.

Torsion Spasm in Epidemic Encephalitis.—Henner observed ten instances of an extension syndrome in postencephalitic parkinsonism. He publishes the history and motion pictures of a torsion spasm on a similar basis in a 16 year old Czech from a healthy family. He believes that the parkinsonian extension syndrome is nearer to torsion spasm than to typical parkinsonism.

Physiology of the Thyroid.—Charvát injected intravenously 1 c.c. of a 10 per cent. solution of sodium iodid per 10 kg. of body weight. The iodin disappeared from the blood faster in hyperthyroidism than in the healthy controls. The blood sugar was not changed or only slightly decreased in normal subjects, while it was increased in hyperthyroidism. It decreased in one patient with exophthalmic goiter who was, however, increasing in weight before the test was applied.

Typhoid Fever.—Doskocil concludes from his observations that recurrences and complications of typhoid are frequently due to an insufficient development of the protecting substances of the serum.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 1837-1932 (April 26) 1924

Plants Responsible for Hay Fever at Utrecht. Benjamins et al.—p. 1838.
*Access to Posterior Recesses of Nose. P. J. Mink.—p. 1845.
Alcohol Addiction in Five Generations. H. M. Kroon.—p. 1855.
Clinical Features of Epigastric Hernia. A. Willemse.—p. 1863.
Acute and Chronic Tuberculous Processes in Same Lung. Schaap.—p. 1866.
Tuberculosis in the Netherlands Army in 1920 to 1922. Van der Stempel.—p. 1889.

Access to Sphenoidal Sinus.—Mink describes with illustrations an endonasal, almost horizontal technic which allows direct and easy access to the posterior sinuses, opening up the recessus spheno-ethmoidalis to direct visual inspection and to application of cold, heat and electricity in a hitherto inaccessible region, close to the optic nerve, the pituitary and the sphenopalatine ganglion.

Acta Medica Scandinavica, Stockholm

Supplement VI.—pp. 1-159, 1923

Physiology of the Parathyroids. A. H. Salvesen.

Finska Läkaresällskapets Handlingar, Helsingfors

66: 153-354 (April) 1924

Structure and Movement of the Cell Plasma. A. Wallgren.—p. 153.
Progress of Surgery During the World War. R. Faltin.—p. 173.
*Conditions Entailing Hormone Upset. R. Ehrström.—p. 197.
*"Spring Fever." R. Ehrström.—p. 210.
*The Blood Sugar in Articular Rheumatism. O. Holsti.—p. 217.
*Action of Much Diluted Alcohol. E. Vartia et al.—p. 246.
Insulin in Diabetic Coma. E. A. v. Willebrand.—p. 266.

Conditions for Hormone Upset.—Ehrström recalls that the action of the hormones is essentially chemical, so far as traced. We know only a few of the probably numerous hormones, but we know that their harmonious interplay may be deranged by deficient or perverted production of some hormone, or change in the chemical medium in which it acts, or by binding of the hormone by some drug or other substance. He is convinced that all the substances which are potent in minute amounts (oestrin, for example) are in certain relations to each other. Research on this chemical microcosmos may reveal, for instance, the hormone that controls the metabolism of hemoglobin, and then we will have the key to the problem of blood diseases.

Spring Lassitude.—Ehrström is inclined to ascribe "spring fever" to a seasonal neurosis, probably connected with the winter diet. His analysis of 3,039 cases of neuroses of different kinds shows a constant peak during the spring and early summer. The suicide curve between 1851 and 1907 shows an almost identical seasonal prevalence of the 5,471 cases. As green vegetables become available, the curve declines. "We live in fall and winter on the stored light of the summer."

Abnormal Glycemia Reaction in Rheumatic Arthritis.—Holsti's research on patients with acute or chronic lesions tested with 100 gm. glucose in 300 gm. of water confirmed the upset in the balance of the internal secretions in these conditions. In several cases there were indications of symptomatic hyperthyroidism, and, in a few, alimentary or even spontaneous glycosuria indicated derangement of pancreatic function. In still other cases the glycemia reaction was of the hypothyroid type.

Action of Alcohol in Weak Concentrations.—Vartia and his two co-workers studied on themselves the effects of beverages containing less than 2.74 per cent. of alcohol. The test period was twenty-nine to thirty-one days after a week's training. The precision test was the threading of needles, and the tabulated findings show that 2.74 per cent. alcohol content displayed a slight inhibiting influence on mechanical performances. With smaller proportions, the effect was imperceptible.

Hygiea, Stockholm

86: 225-256 (April 15) 1924

*Incipient Renal Tuberculosis. M. Persson.—p. 225.
*Traumatic Asphyxia. B. Bager.—p. 229.
Analysis of "Paranoic Psychoses." V. Wigert.—p. 244.

Incipient Renal Tuberculosis.—The small bunch in one papilla of the kidney was shown by the microscope to be an evidently blood-borne tuberculous focus, opening into the kidney pelvis by a microscopic fistula. A small superficial tuberculous ulceration near its mouth explained the pus and tubercle bacilli in the urine, on account of which the kidney had been removed.

Traumatic Asphyxia.—Bager's patient had been caught between cars for one minute, the pressure acting on the sides of his chest. Bager discusses the similar cases in the literature of injury from compression of the trunk, and the reasons why there is no loss of consciousness, while blindness for about an hour is common, with complete recovery of vision in a fortnight. The preexisting pressure in the rigid skull and orbit evidently protects against influx of blood during the compression. The Germans call it "traumatic stasis hemorrhage"; the French describe it as the *masque ecchymotique de la face par compression thoracique*, but Bager prefers the English term, "traumatic asphyxia." He gives a list of points which should be recorded in such cases.

86: 257-288 (April 30) 1924

*Tetany and the Neutral Balance. G. Lindberg.—p. 257.

Tetany and the Acid-Alkali Balance.—Lindberg reports three cases in which typical tetany had developed after a fright which had caused violent panting—typical examples of respiration tetany in the nervously predisposed. In another case the tetany occurred with duodenal ulcer and a gastric acidity of 130, free hydrochloric acid, 100. In a fourth case, a swimmer was attacked with painful rigid cramp of the legs, spreading to involve the arms and hands. The cramp was thus not typical tetany, but seemed to have some connection with respiration tetany. Lindberg has had favorable experience with inhalation of carbon dioxid in treatment of manifestations of spasmophilia. Its sedative action throws light on the tendency to alkalosis. In treatment of tetany in children, he has been impressed with the benefit from a combination of ammonium chlorid and calcium chlorid or bromid. He has given 0.5 or 0.6 gm. of the ammonium chlorid per kilogram daily.